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THE

Dental Summary

EDITED BY
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COLUMBUS, OHIO

VOL. XXVII.

PUBLISHED MONTHLY BY
THE RANSOM & RANDOLPH CO.
TOLEDO, OHIO

95

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PRESS OF

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REGULAR CONTRIBUTIONS

INSTRUMENTATION OF CAVITY PREPARATION FOR PORCELAIN INLAYS.

BY ARTHUR E. PECK, M. D., D. D. S., MINNEAPOLIS, MINN.

The retention, strength and color of a porcelain inlay depends largely on its cavity preparation, and if this step of the operation is properly made, ordinary care and skill ought to produce a satisfactory restoration. Those who expect to be successful in this branch of dentistry must understand cavity preparation, and to do this necessitates correct instrumentation and systematic work. Many different instruments may be used for this part of the operation (cavity preparation), but I have found the list which is given here to be almost indispensable for this particular system:

Vulcarbo Disk No. 8, S. S. W. or Lee S. Smith & Son lists.
Vulcarbo Disk No. 6, S. S. W. or Lee S. Smith & Son lists.
Gem Cavity Trimmer No. 1, Mt'd S. S. W. list.
Gem Point No. 11, Mt'd S. S. W. list.
Gem Point No. 5, Mt'd S. S. W. list.
Special Cone R. A. Burr, Sm. M. & Lg.
Special Cone Burrs, Sm. M. & Lg.
Special Pear-Shaped Burr, Sm. M. & Lg.

In order to apply these instruments correctly it is necessary to become familiar with the classification of cavities, as reference in detail is made for their application.

Cavity preparation for porcelain inlays should be cut deeper and freer than is usually required for a gold operation; a veneer of porcelain is sure to cause a failure by either admitting a reflection of the cement, which will effect the color problem, or be too frail to stand the stress to which it is sure to be subjected. Acute

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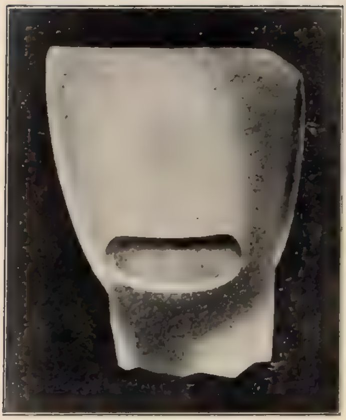
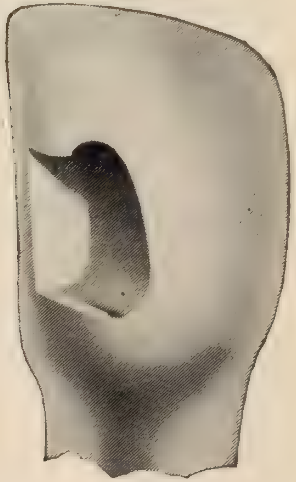
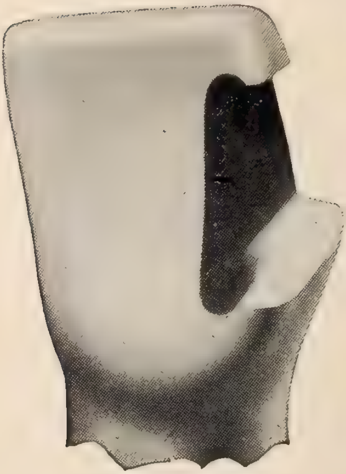


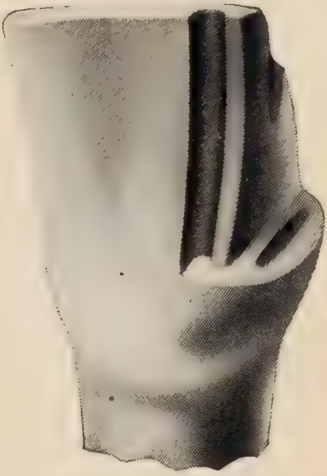
First Class Cavity



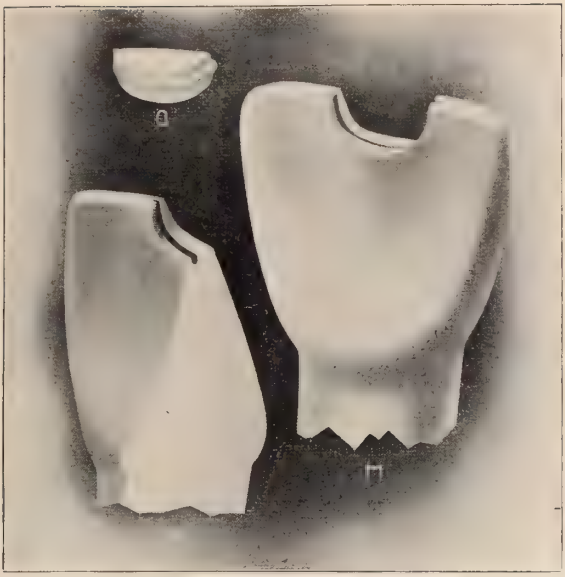
Second Class Cavity



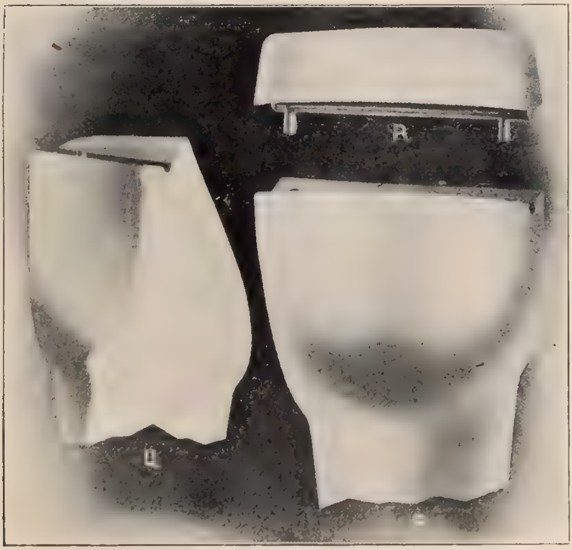
Third Class Cavity



Fourth Class Cavity



Fifth Class Cavity



Sixth Class Cavity

angles should be avoided wherever it is possible, as the strength of an inlay depends largely on the shape and amount of porcelain used; these features as well as the retention of the inlay I wish to emphasize. I believe it is possible in nearly every case to so prepare your cavity that it is self-retaining, allowing the inlay to be removed only from the direction in which it was forced to place, depending on the cement for simply retaining the weight of the inlay and excluding the moisture. Separation of the teeth need never be considered with this system of cavity preparation. The following classification of eight typical preparations with a few variations will cover any cavity which may present itself.

First class of cavities are those involving one surface, Labial cavities.

Second class of cavities involve more than one surface, Mesio-Labial.

Third class of cavities involve the Mesio-Labial-Lingual surfaces.

Fourth class of cavities involve Mesio-Labial-Lingual-Incisal.

Fifth class of cavities, Labial-Lingual-Incisal.

Sixth class of cavities involve the whole incisal edge.

Seventh class of cavities involve the approximal and occlusal surfaces of the posterior teeth.

Eighth class of cavities involve the whole occlusal surface of the posterior teeth.

The first class of cavities should be opened with a round or the special pear-shaped burr, the walls should be straightened and the margins finished by means of the special large cone burr.

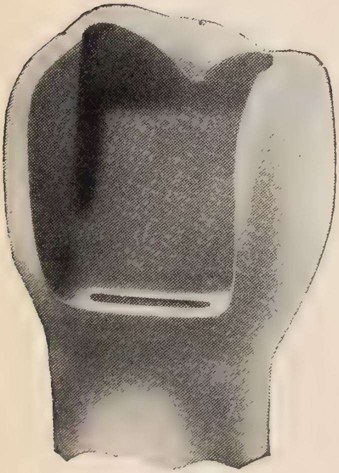
To prepare cavities of the second class, which involve the labial and approximal surfaces, but not the lingual, the two sizes of the special cone burrs are all that is necessary.

The third class of cavities which involve the lingual and approximal surfaces, can be correctly formed by means of the same form of burrs used in the second class, except that they must be for the right angle.

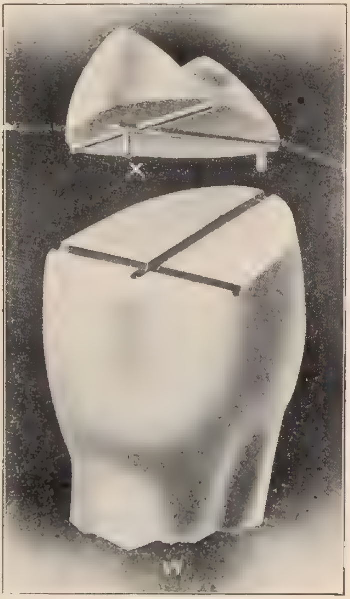
The fourth class of cavities, which involve the lingual, labial and incisal edges must be considered closely. The first instrument used for this work should be a thin Vulcarbo disk (see list, S. S. W. or Lee Smith), with which the tooth should be cut from the incisal edge straight back to the base of the cavity.

The No. 5 gem point can now be used to cut a groove on the lingual surface from the base of the cavity to the incisal edge; this should be cut well into the firm tooth substance.

If there is an extension of the cavity which would make an undercut, it should be filled with cement and properly trimmed to admit of an impression drawing. Now the special cone burr is used to straighten this lingual groove, and remove the layer of enamel between the groove and the cavity proper; then a groove is made on the labial margin, as nearly parallel as possible with the groove on the lingual surface. This is done with the Medium or Large Special Cone Burr. A slight depression in the base of the cavity will be the third retention groove for the inlay. This preparation has proven ideal for the fourth class of cavities, as an inlay forced to position with this preparation is keyed to place with the labial groove, thus resisting stress from all directions excepting one. The cement is used only to exclude the moisture and retain the weight of the inlay.



Seventh Class Cavity

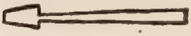


Eighth Class Cavity

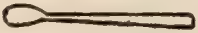
In making the fifth class of cavities, the main features to consider are, that the walls of the cavity are at right angles to the in·

cisal edge; and down the walls and across the base you must have a slight retention groove; this is opened with a No. 11 gem point, and the groove is made with a small special cone burr. The depth of the retention groove should be very slight.

The sixth class of cavities is first cut down to the required depth by the use of the No. 11 gem point, and then a groove as deep as possible is made across the end of the tooth by use of the medium-size, pear-shaped burr. Now, with your inlay cone burrs, using as large a burr as possible, gradually slope the lingual and labial surfaces towards the center. If pins are used on either side of the pulp, a slight depression is made with the pear-shaped burr, which marks the site of the pins in the matrix. Sometimes it is possible to make this cavity large enough to avoid placing pins in the inlay, using the body of porcelain which extends into the tooth for retention.



Special Cone



Special Pear

Cavities of the seventh class are formed almost entirely by the use of the medium-size special cone burr, and must be cut freely towards the margin of the tooth on both the buccal and labial surfaces. The retention is obtained by means of a groove on either side.

The eighth class of cavities should be started by cutting off the tooth as much as the patient will permit, using a stone; the grooves are then made with the burr or carborundum disk, and the retention points are placed in the part of the tooth which will admit of the pins being inserted.

It is seldom necessary to deviate from these forms. The principles given in these eight classifications with slight variations can be applied to any form of cavity which may present itself.

INLAY RESTORATION.

BY MAX M. EBLE, D. D. S., LOUISVILLE, KENTUCKY.

In inlay restoration for extensive mechanical abrasion, as illustrated by Fig. 1 before, and Fig. 2. after operating, it is first necessary to determine how far the bite is to be opened, then construct the inlays, or onlays, whichever you choose to term them, for the central incisors of the required length to act as a guide for the remaining inlays. These two inlays are finished, but not set permanently, only placed in position temporarily, while the next four or six inlays are completed. Then said number are set permanently and the remaining ones completed and set, one or two at a sitting. In Fig. 1 there was no grinding of the tooth surface

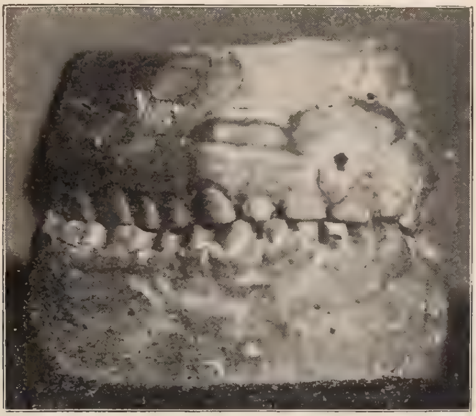


Fig. 1

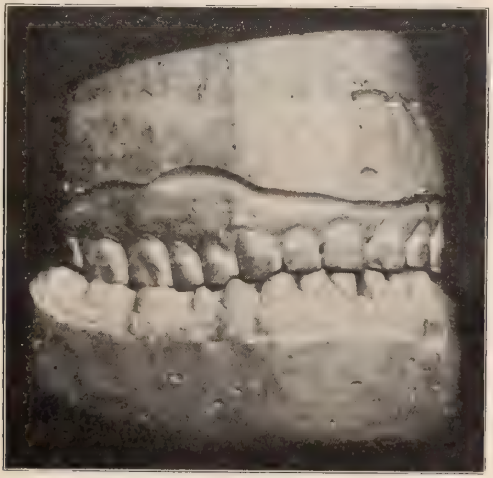


Fig. 2

to be covered; all irregularities were allowed to remain, only the friable edges were trimmed with sandpaper discs. In the anterior teeth, including the bicuspids, two pins were used, and in the molars three and four.

MATERIALS USED IN CONSTRUCTION.

The materials used in construction are: Twenty-four-karat gold plate, 36 gauge; round iridio-platinum wire, 18 gauge; 22 and 20k. gold solder. Round wire is best suited, as in forcing same through the plate it carries a little bur of gold with it, making such close adaptation between pin and plate that only a minimum amount of solder is necessary when attaching pins, and in subsequent soldering there is little or no danger of drawing solder on the reverse side of inlay, so fatal to a perfect fit.

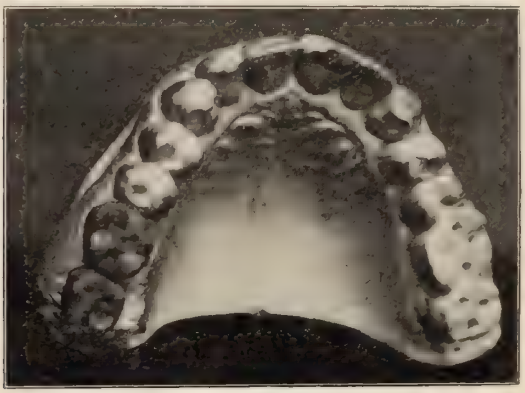


Fig. 3

METHOD OF CONSTRUCTION.

Having trimmed all friable edges, drill the pin holes at such points as will give you the best retention and not endanger the pulp, as in Fig. 3, yet leave the tooth in such a condition that, should it ever become necessary to enter the pulp chamber, you can drill through the inlay and not impair its integrity. The holes must be drilled as nearly parallel with each other as possible to the depth of one-eighth of an inch, more or less, as conditions may indicate. You will frequently find it exceedingly sensitive in these little holes, but if you have not actually exposed a nerve, there is practically no danger, as the pins are insulated when set in cement. Select a piece of gold plate a trifle larger than the surface to be covered, place same on tooth, then place a piece of eraser rubber over the gold and request the patient to close the jaws. You then have a perfectly swaged plate with indentations for the pin holes. Allow this to remain on the tooth, and with a piece of 18-gauge iridio platinum wire, previously pointed, punch the first hole with a rotary motion. Punch one hole only, then insert a piece of the 18-gauge iridio platinum wire of required length, remove plate and pin with a pair of small soldering tweezers and attach pin with a minimum amount of 22k solder by holding over the Bunsen burner. Right here is where you will find why *round wire* is used and why the holes are made with a pointed wire so as to carry a bur of gold with it, because the two parts being in such perfect contact, can be removed with little danger of changing position. When the first pin has been soldered, replace swaged plate on tooth and attach the other pin or pins in like manner.

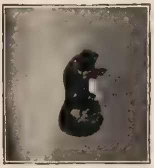


Fig. 4

Fig. 4 shows pins soldered in position. Some may prefer to place all the pins in position and remove with sticky wax, invest and solder, but with a little practice and confidence you can use the first-mentioned method with results equally as good and with a saving of time. Having all of the pins attached, replace on tooth, cover with the rubber eraser and have patient close the jaws as before. Coat the reverse side of your inlay with a solution of whiting, then reinforce the plate all over with 22k solder, either by holding same over the Bunsen burner or by using the blowpipe. Replace on tooth, see that the adaptation is still perfect, trim moderately close to margin and take impression and bite in one piece of modeling compound. Now mount same on the articulator, as for shell crown. Having separated the same, build up the contour with sticky wax (Fig. 5), then take an impression of it with moldine, make a metal die and swage up to cap of 36-gauge pure gold, making it deep enough so that the edges will slightly overlap the edge of the reinforced plate on articulator. Next cut a round hole one-eighth to three-sixteenths of an inch in diameter in top of cap (Fig. 6), warm the cap slightly and place in position over the wax (Fig. 7). The pliability of the thin pure gold is such that you can now press the edges of the cap to fit accurately against the reinforced plate. Now remove all metal parts held together by the wax from the articulator and invest with only the hole in the top or occlusal surface exposed. Next boil out the wax, heat up and fill with 20k solder. Usually this will result in an almost finished piece of work, or at least one that can be completed by the use of engine stone and disc in a very few minutes.

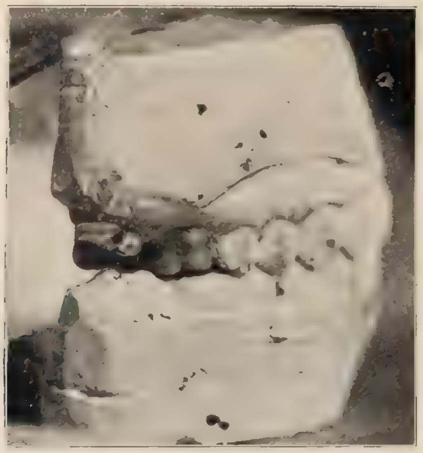


Fig. 5

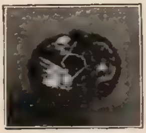


Fig. 6

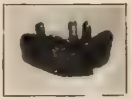


Fig. 7

Fig. 8 shows completed inlay. It is always well to have your inlay finished as nearly as possible before setting it permanently, as the work can be done out of the mouth in a much shorter time than in the mouth, and with much more comfort to yourself and patient.

A word of caution right here: when finishing the inlay out of the mouth do not attempt to hold same with your fingers, but grasp it securely by two of the pins with a pair of parallel pliers. Otherwise a catch or slip of disc or stone might ruffle your naturally genial and sunny disposition and impair a perfect fit. Figs. 9, 10, 11, 12, 13 illustrate the restoration of an anterior tooth.

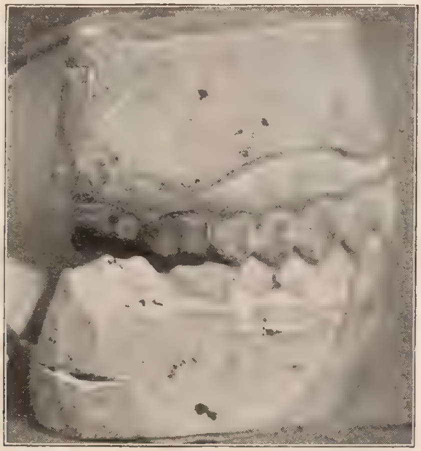


Fig. 8

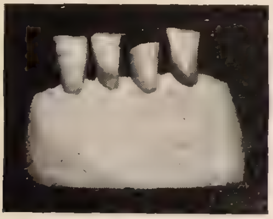


Fig. 9

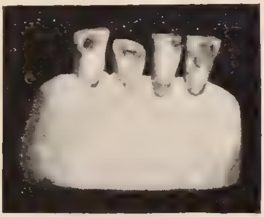


Fig. 10

Having borne with me thus far patiently, you may say, *it sounds good,* but is it practical? In *response,* I will say, the case

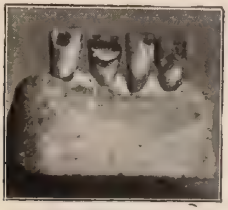


Fig. 11

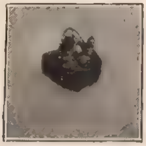


Fig. 12

illustrated was completed in August, 1904, for a man forty-two years of age, who weighs two hundred and fifty pounds, and when he closes his jaws together something must give, if it is not securely anchored. All of the teeth were alive, and two weeks ago were in just as good condition as when the work was completed about two and a half years ago.

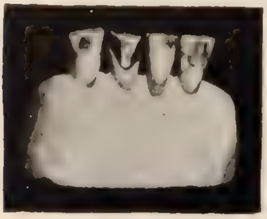


Fig. 13

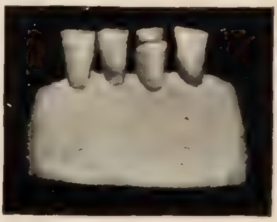


Fig. 14

PERHYDROL AND MAGNESIUM PERHYDROL.

BY PROFESSOR RICHARD WOLFFENSTEIN, BERLIN, GERMANY.

The therapeutic application of hydrogen peroxide is due to the action of this preparation on suppurative processes, blood, etc., as on coming into contact with these secretions, hydrogen peroxide decomposes into water and oxygen, and the liberated, chemically- active oxygen acts very strongly as a disinfectant.

Since the other decomposition product, the water, has no noxious action whatever, it follows that hydrogen peroxide constitutes an ideal, innocuous, odorless and active disinfectant. Moreover, the oxygen liberated by the decomposition of the hydrogen peroxide, is to be considered as the best mechanical detergent because by its effervescent action it removes with it the infiltrated particles.

Notwithstanding these advantages, and although this preparation has been well known therapeutically for a long time, its employment did not become general until quite recently.

The cause of the aforementioned circumstances is the chemical behaviour of hydrogen peroxide, since the oxygen does not escape only when it is desired by the physician, but constantly, even from the containers in which it is kept. Thus the preparation becomes continually weaker, and is at last quite ineffective. Moreover, this escape of oxygen is very liable to cause bursting of the bottles.

It was discovered that an addition of mineral acids, like sulphuric acids and others, heightens the stability of the preparation, and also if the solutions of hydrogen peroxide were not too concentrated, they could be better preserved, and this led to the production of a solution containing not more than 3 per cent of hydrogen peroxide with added mineral acids.

This, then, was the preparation with which, until recently, physicians had to work, and it must be acknowledged that it did not by any means fulfill the conditions which are required from a pharmaceutical preparation.

It was not a pure nor yet a stable product, and its low concentration prevented many of the therapeutical effects of pure hydrogen peroxide from being obtained.

This hydrogen peroxide was specially unsuited for dentists' use, as the mineral acids it contained corroded the dental tissues.

Some years ago it was discovered that the decomposition of hydrogen peroxide solutions was not really due to the hydrogen peroxide itself, but rather was produced by the foreign bodies contained in the preparation, and it was further demonstrated that a *chemically pure preparation of hydrogen peroxide retains constantly its percentage composition, and never spontaneously decomposes.*

The solution of the problem concerning the therapeutical application of hydrogen peroxide, then, practically demanded the preparation of a perfectly pure peroxide of hydrogen, whereas formerly it had been tried to prevent decomposition by adding every sort of foreign, and often not neutral bodies. Acting on these experiences, the firm of E. Merck has now prepared a thoroughly pure and stable hydrogen peroxide, which they issue under the name of perhydrol. It is quite free from acids, does not contain any other impurity, and its concentration has been heightened, it being now 10 times as strong as former preparations. Perhydrol is an aqueous solution, containing 30 per cent., by weight, of chemically pure hydrogen peroxide, and is suitably supplied in bottles which are lined with a thin layer of paraffin, special trials having shown that perhydrol can be preserved in such bottles quite unchanged *for years.*

The danger of explosion in consequence of the liberation of oxygen, as was the case with the older preparations, is quite out of the question with perhydrol.

This pure perhydrol has now been employed for the preparation, according to a patent process, of Magnesium Perhydrol. It was decided to combine perhydrol with magnesium because, while this is one of the few elements which can form a stable combination with perhydrol, its basic nature renders it possible to produce a substance possessing two of the principal conditions required of a dentifrice, viz: the disinfectant action of the pure hydrogen peroxide, and a slightly alkaline action which would neutralize the noxious acids of the oral cavity, and in this way protect the teeth from decay. Moreover, magnesium has an extremely fine grain, much softer than that of chalk, which, as Creta Præcipitata, is used in the majority of dentifrices.

As a dentifrice, Magnesium Perhydrol acts as follows: The magnesium neutralizes the acids of the oral cavity whilst the corresponding quantity of hydrogen peroxide which is liberated acts as a disinfectant. The advantage of the Megnesium Perhydrol is that it brings its effects to bear just upon the so-called "weak places," and even when it is given undiluted it causes no irritation whatever, the hydrogen peroxide contained in it being in chemical combination.

As prepared by the firm of E. Merck, the preparation can be obtained in two strengths, one containing 15 per cent. and the other 25 per cent of Magnesium Peroxide.

Magnesium Perhydrol may be used as a dentifrice either undiluted or mixed with neutral bodies.

A STUDY OF THE MUCOUS MEMBRANE, WITH SPECIAL REFERENCE TO ORAL PROPHYLAXIS*.

BY GEORGE W. COOK, CHICAGO.

For the last few years, it has been my privilege to study a number of biological phenomena that appear in the oral cavity, both from a physical and chemical standpoint. We find the oral cavity a variable field for the physiological processes in bacterial life.

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*Read before the Indiana State Dental Society, June, 1906.

The action of inorganic and organic substances on the living cells and tissues has been a subject for innumerable investigations, physiological as well as pathological: From all that has been formulated as fact, one would at once say that the inorganic salts remain as inorganic salts in protoplasma or enter into a loose chemical combination with living proteids; and that their presence there gives special significance to certain cell activities, both qualitative and quantitative, and seems to go hand in hand with the phenomena of valence velocity and electrical potentiality. Not only may the salts of the so-called electrolytes combine with the protoplasma, but they are constantly entering into chemical and physical activities with tissue. According to Osborne, there may be salts present in the proteids that are non-disassociable, or in other words, that are removed from the living cell with great difficulty. These electrolytes play a great part in the physical processes that are constantly manifesting themselves in the life energy of the cell.

These salts that are found in the nucleo proteids are decidedly acid in character and are also little, if at all, disassociated; while those that enter into the loose combination of the cytoplasmia of the cell are, as we have just said, actively engaged in the physiological processes, and are salts that are easily disassociated.

It might be said in this connection that globulin contains an acid salt, which is easily disassociated and can readily be dialyzed from the cell substance.

According to Holmgrnn, mucin contains an acid salt, which is usually present in the mucoid substance of the oral mucous membrane, and probably exists there as a sodium salt.

MUCOID SALTS.

The part that is played by the mucoid salts is of vast importance in certain digestive processes, as they appear in the salivary secretions; the most important ones come from the mucous membrane or mucous cells of the lining of the mouth. These salts play an important role in the amylolytic digestion of starch. It has been observed that this diastatic action can be produced in a slightly alkaline substance, but it is possible to accomplish this when the solution has been acidified with hydrochloric acid.

Without going into the chemical changes that take place in the action of ptyalin, suffice it to say that this digestive process is extremely interfered with when any foreign substance, and especially when any metallic substance, is present in the slightest appreciable amount.

Therefore, as a general proposition, the mouth should be kept extremely free from any agent that is likely to retard or in any way interfere with this action, the first step, of the digestive processes.

MUCOUS MEMBRANE NOT GIVEN DUE CONSIDERATION.

Ever since the elucidation, by Miller and others, of the fact that bacteria are constant inhabitants of the oral cavity, and that these organisms play an important role in the causation of dental caries and other oral pathological lesions, the profession of dentistry has been seeking an agent that will destroy the bacteria of the oral cavity, completely losing sight of the fact that the oral mucous membrane should, for the best maintenance of the digestive processes and for the protection of the deeper structures from serious pathological lesions, be kept in the most healthful physiological condition.

When we take into consideration the fact that the mechanism of the mucous membrane is, in itself, protective against any foreign parasitic life, and the fact that the mucous membrane plays an important part in furnishing a neutral chemical field for carrying on certain digestive processes, we gain the great fact that no agent should be used as a bactericidal; for such a compound will invariably produce harm, not only in that it disturbs the action of the ptyalin of the saliva, but in that it renders the functional activity of the mucous cells incapable of furnishing the various compounds that are so essential to the enzymes of the saliva, and in that it many times destroys the true mechanical structure of the mucous membrane, thus changing it from a physiological to a pathological structure. Sometimes, however, the morphological appearance of the cells is but little changed, while their functional activity may be very materially interfered with; in most instances, however, both are the result.

RETROGRESSIVE METAMORPHOSIS OF CELLS.

Retrogressive metamorphosis of the cells is observed in certain epithelial mucous membranes and mucous glands. The change in the cell itself usually consists in showing vacuoles in the cytoplasma of the cell; these vacuoles become larger and larger until they expand the cell into a goblet shape. The vacuoles that appear in the cell are in the mucoid material of the cells, and are very largely the substance of the changing cell. This change continues in cell after cell, the vacuoles being cell contents until the cells completely lose their function, no longer remaining as even pathological cells, but becoming dead cells.

In a study of the morbid physiology of the mucous membrane of the human mouth, after using any of the so-called germicidal agents, or even those that are feebly antiseptic, the mucous cells are found gradually to degenerate, and instead of having constantly discharged mucin in the normal quantity and the normal chemical constituent, it becomes a pseudomucin. This, on chemical analysis, shows that it does not contain the chemical elements that go to make up the normal mucin. The so-called paramucin interferes very materially with the diastatic action of the saliva in the digestion of starch; in some portions of the mucous membrane of the mouth this mucoid cellular degeneration extends to the deeper cells, and in some instances will progress even to the connective tissue cells. This condition is especially observed in the gum tissue, where the gingival border grows thin and white, and gradually begins to recede from its normal position on the necks of teeth. When just such tissue changes are observed, if the history of the individual and especially the care of the mouth is obtained, it will be found that person has constantly been using tooth powders and mouth-washes without any regard to what deleterious effects they may have on the tissues surrounding the teeth. The connective tissue cells, and more especially the cells of the mucous membrane, show the presence of mucous droplets in the cytoplasma. The next step in the degenerative process is in the nuclear degeneration of the cell. The nucleo always stains pale and quite indistinct, showing that, during the degeneration of the cytoplasma of the mucous cells nutrition of the nucleo has been interfered with, and that, in the nucleus there is a loss of the chromatin substance, which interferes with the regeneration of mucous tissue.

ZINC COMPOUNDS DETRIMENTAL.

Mouth-washes that contain any of the heavy metals, if used indiscriminately in the pockets of pyorrhea alveolaris or on those so-called spongy gums, will always produce a change in the cells, a change from the phsiological to the pathological. While various forms of zinc have been universally recommended in certain conditions of the tissues of the mucous membrane, they will render the mucous cells abnormal; the slightest trace of this metal will prevent the action of ptyalin on starch for an indefinite period of time. In experiments with zinc and various other members of this group of metals, like mercuric compounds, iron, copper, etc., prevents the digestion of starch from one to six hours after the use of the metal in the mouth. We also found the same to be true, not to such an extent, however, in cases of solutions of the various essential or volatile oils.

With these hydrocarbon compounds it is quite essential that some of the vegetable alkaloids, such for instance as tinctures containing astringent properties, be used in combination. With very few exceptions, the alkaloids have a stimulating effect on protoplasma, without producing irritating conditions. Therefore they will cause regeneration of cell substance.

ACTION OF DRUGS.

If the true biological action of drugs and their value as agents in treating pathological lesions are taken into consideration, it must be said that, in the majority of instances, drugs form chemical compounds with some molecule present in the protoplasma, and thereby act upon all cells according to the affinity of a drug for particular cells. This action may become detrimental to cellular regeneration, and in this way interferes with all physiological processes in that particular tissue with which the drug comes in contact, until the part becomes diverted from a physiological to a pathological condition. With but few exceptions, this is the development which may be expected from the use of the various mouthwashes that are at present on the market.

MANY MOUTHWASHES DETRIMENTAL TO THE MUCOUS MEMBRANE.

Granting, however, that many of the mouth-washes render the mouth alkaline and may act feebly on some of the bacteria present, they nevertheless act detrimentally to certain epithelial mucous cells and destroy the bacteriolytic power of the mucous membrane and the mucus itself. Certain mucoid substance coming from purely physiological mucous membrane has an inhibitory power on the virulent action of certain forms of bacterial life. No better illustration on this point can be given than the one of diphtheria, where the individual is predisposed to this disease up to a certain period of life; after this period has been passed the pathogenic organism of this disease may, and does, many times exist in the human oral cavity without manifesting any of the local or constitutional symptoms of the disease. The principal reason for such a phenomena is due to the fact that the mucous cells have an inhibitory action on the bacteria of this disease. All cell life from the lowest in the animal kingdom up to the highest is endowed with certain protective influences, but this immunizing influence, as we have suggested above, can be easily rendered non-protective. This is a fact so well known that it needs but little emphasis at this time.

It might be well to say in this connection that in the higher forms of cellular activity this change can be more easily produced than in many of the lower forms of protoplasma.

Too much stress cannot be placed on the idea that disease is always a process resulting from the action of a series of factors of unequal value, and that in the treatment of disease, let it be from so-called local or from the general condition, the individual must always be treated instead of the disease itself.

There are, however, certain hygienic conditions that, if followed out, will not only prevent, but will cure diseases. In speaking of the specific cure of diseases, and especially those that are looked upon as parasitic, we ordinarily look forward to something of a chemical substance acting as a disinfectant only upon certain species of bacteria, many times losing sight of the fact that a substance might be introduced that would act as a stimulus to the body cells of the human organism, and in this way cause the cells of the body to become a disinfectant in themselves. Chemical substances that act antiseptically on bacteria do not always act as a stimulus to the cells of the human organism, but, on the other hand, have a specific deleterious effect upon the cells of the higher organism, and in this way leaving a condition of the tissue predisposed to the action of certain parasites, and defeating the very end which it was hoped to obtain.

After a long clinical observation in oral hygiene, and after reviewing all the experimental data that I have been able to obtain, the latter development is the one that is most commonly accomplished by the oral therapeutists, especially in their effort to practice prophylactic measures. In experiments that I carried on, under the guidance and suggestions of Drs. Mathews and McGuigan of the physiological laboratory of the University of Chicago, I took the various mouth-washes that are on the market at the present time to determine their efficiency as bactericidal agents, as well as their effects upon the cells of the higher forms of life. We found but few agents, that are usually designated as mouth-washes, which did not in most cases act more detrimentally upon the tissue cells than they did upon bacterial cell life. We came to the opinion, after observation and experimentation, that any of the agents now used, with but two exceptions, çause cellular degeneration of the mucous epithelial cells, diverting their functional activity from a physiological toward a pathological condition. Each of these two mouth-washes contains a member of the benzine ring, with some of the hydrocarbon compounds.

All of those agents, which are active oxidizing agents, produce very deleterious effects upon the enzymes of digestion; not only do they act upon the enzymes of oral digestion, but they act upon the pancreatic enzymes as well, preventing the action of these digestive ferments to an almost ungovernable degree; too, they have but slightly antagonistic effect upon bacterial life. The cleansing of the mouth and teeth by the methods that are most common with these agents will, in the course of five years, if a stiff toothbrush is used, cause a degeneration of the mucous cells, attended with a recession of the gums from their normal position around the necks of teeth, and will, in addition, cause a destructive influence to the digesting of all of the carbohydrates, and of pretty nearly all of the substances known as the nitrogeneous compounds. A stiff-bristle toothbrush may be used in a large number of cases; but, instead, where there is a tendency to white, thin, gingival margins, a soft cloth should be wrapped around the finger and the parts massaged. In this way a great deal of pressure or undue force is avoided. This treatment is especially necessary over the six anterior teeth, if the teeth are inclined to be short and the upper lip correspondingly short, so that there is considerable gingival margin exposed to the action of the lower borders of the upper lip.

TOOTHBRUSH FRICTION AND EROSION.

I am very much inclined to agree with the views of Dr. W. D. Miller, who is of the opinion that friction plays an important role in erosion of the teeth. I am quite convinced that where there is erosion along the gingival border, and where there has been more or less recession of the gum tissue, on inquiry it will be found that the individual has been using a stiff toothbrush, and in a great many instances a coarse tooth powder. In such a case, if a microscopic examination of the soft tissue is made, it will be ascertained that the mucous cells have almost completely degenerated and that but little of the tissue substance other than the interstitial and connective tissue remains intact.

In oral prophylaxis it is important that the gum tissue be not injured with toothpicks, rubber dam clamps and ligatures. If such an accident occurs it is always advisable to bathe the injured part with pure sterile water, as hot as it can be used on the part without producing severe pain, gently massaging the gum with the finger, and then painting the injured tissue with iodine. When such a treatment is necessary the patient should be taught to draw silk ligature between the teeth, for the purpose of removing particles of food, without letting the ligature pass abruptly through the contact point and injuring the gum tissue in the interproximal space.

TREATMENT OF INFLAMMATION OF GUM TISSUE.

The best results to be obtained, where there is inflammation of the gum tissue is to remove all foreign agents, such as calcific deposits, etc., thoroughly massaging the gums with repeated applications of hot water, as hot as can well be borne. After this has been accomplished, and especially if there be thin, anemic gum tissue, apply Liquor Iodi Compositus (Lugols' solution), not in large quantities, however, but on a small piece of cotton dipped into the iodine with the excess of the solution removed, leaving just enough of the iodine to stain slightly the tissue. If the gums be of a red, inflamed and somewhat hypertrophied condition, run an instrument around the free margins. It will be found that very fine deposits will be at the bottom of these pockets, not extending very far under the free margin of the gum. A solution of iodide of potassium can be applied after massaging the gums and treating them with the hot water as previously stated.

INSTRUCTIONS TO PATIENTS.

The instructions to patients, after the dentist has fully performed all of his duties, are twofold. First, they should be instructed as to their general healthful exercise, food and diet, and the part these will play in the maintenance of a healthful body. Second, they should be instructed to use mouth-washes, prescribed by the dentist himself only. The dentist in charge of the case should invariably take into consideration the habits of the patient, and to make inquiry into the general disposition of the individual as to the care of his own teeth.

TOOTH PREPARATIONS CONTAINING ESSENTIAL OILS.

Mouth-washes or tooth pastes containing any of the essential oils, benzoic or salicylic acid, should never be prescribed unless there is something to counteract the depressing influence these agents have on the mucous cells of the mucous membrane. And as I have previously stated, there is nothing whereby this can be accomplished except in some of the vegetable alkaloids.

The Kenwood Hotel pharmacy has a formula that is a modification of a formula of Dr. W. D. Miller's, which I have modified in a number of ways; and yet this cannot be prescribed in all cases and under all circumstances, because, as I have previously stated, no mouth-wash, nor fixed rules or regulations, can be adopted whereby any formula can be made applicable in any and all cases.

Oral prophylaxis means nothing more or less than to keep the free margins of the gum tissue in a healthful condition and to see that no deposits remain for any great length of time under the gingival border, and that massaging the gums is one of the most efficient ways of keeping them in a healthy condition. If the oral mucous membrane is in a perfectly healthy condition and the nervous system is in perfect equilibrium, and digestion and assimulation is fulfilling, all the functions that are required in this particular prophylaxis of the oral cavity is as easy to regulate and diseased conditions are as easily handled as any of the rest of the body. Systemic functional activity, in a normal way, is all that is really required in the normal performances of any part of the body.

DISCUSSION.

Dr. G. E. Hunt: This is a rather remarkable paper. It is very difficult, even after two or three readings, to find out what the first part of the paper is about. Dr. Cook makes a number of very disconcerting assertions without any proof. For instance, he says:

"When we take into consideration the fact that the mechanism of the mucous membrane is, in itself, protective against any foreign parasitic life, and the fact that the mucous membrane plays an important part in furnishing a neutral chemical field for carrying on certain digestive processes, we gain the great fact that no agent should be used as a bactericidal."

Now, why I don't know, nor does he say, but here is his explanation:

"For such a compound will invariably produce harm, not only in that it disturbs the action of the ptyalin of the saliva, but in that it renders the functional activity of the mucous cells incapable of furnishing the various compounds that are so essential to the enzymes of the saliva, and in that it many times destroys the true mechanical structure of the mucous membrane, thus changing it from a physiological to a pathological structure."

Later on he talks to us of the vacuoles that are goblet-shaped, and finally he says that the connective tissue cells in the submucous tissue become affected.

Now, I don't doubt that Dr. Cook has an idea he has seen something of that sort, but how did he find out that these connective tissue cells underneath the mucous membrane were affected by mouth-washes? Did you prove that?

Dr. Cook—Yes, sir, I did.

Dr. Hunt—Why didn't you give us your proof? Did you kill people to do this?

Dr. Cook—No, I killed dogs.

Dr. Hunt—Here he says:

"Mouth-washes that contain any of the heavy metals, if used indiscriminately in the pockets of pyorrhoea alveolaris or on these so-called spongy gums, will always produce a change in the cells, a change from the physiological to the pathological."

Now, I hate to make this point, but if you have spongy gums you already have a pathological condition; so how are you going to cause a change from a physiological to a pathological state?

Here is another statement:

"In experiments with zinc and various other members of this group of metals like mercuric compounds, iron, copper, etc., prevents the digestion of starch from one to six hours after the use of the metal in the mouth."

If these kind of things are put in mouth-washes, I never knew it. I never saw any formula for mouth-washes that had any copper or zinc in them.

Dr. Cook—You never analyzed them. They are in some mouth-washes.

Dr. Hunt—If you use a mouth-wash you are going to prevent digestion because of these metallic substances, which will prevent the conversion of starch into sugar? How many people use mouth-washes during meals or before meals? A mouth-wash used after meals is not going to affect the food that is already in the stomach. In five minutes after using the wash the effects are gone. How, then, is it going to prevent the conversion of starch into sugar?

Dr. Cook—Do you spit all the time after eating?

Dr. Hunt—The paper goes on to say:

"Mouth-washes or tooth-pastes containing any of the essential oils, benzoic or salicylic acid should never be prescribed unless there is something to counteract the depressing influence these agents have on the mucous cells of the mucous membrane. As I have previously stated, there is nothing whereby this can be accomplished except in some of the vegetable alkaloids."

He tells us the mouth-wash he has here is composed of benzoic acid, tincture of ratanhæ, saccharine, oil of peppermint and oil of cassia. Now, that is his formula, and he uses up several pages of his paper telling us not to use such things. The argument he makes, evidently, is that you must not use a mouth-wash that has any metal in it, because if you do it will unite with the acid, which is free in the mucous cells, and the combination of the two will form a salt. That is as close as I can get to the argument in the first part of the paper. If there are metals in mouth-washes, I never heard of it before, although I have seen them contain salicylic acid and essential oils.

Dr. J. D. Patterson: I had the privilege of reading the paper over, and while I would not dare say what Dr. Hunt has said, I cannot help agreeing with most of the statements he has made in regard to this remarkable paper. The paper is remarkably good in that the advice he gives for the perfect mechanical cleansing of the teeth without the aid of medicinal agents is the best that can be given. In that it is remarkably good, there is no doubt at all about that. Some of the final conclusions in the paper can be recommended to every one of our patients and to ourselves. Yesterday we had a paper and discussion on the subject of mouth-washes, and the general opinion seemed to be that they were of very little value in the way they are used. Now, today we have "confusion worse confounded," because we find that these washes actually prejudice to a remarkable degree the process of digestion, because they prejudice the mucin and the material the cell throws out for the purpose of mingling with the saliva and aiding digestion. What are we going to do? Must we publish a ban on all such medicines? Must we say that no medicines shall be used in any way as mouth-washes? Yet we have a new one here that is going to produce fits and give us something to do in curing them. I cannot think that mouth-washes as used by patients would interfere with the cells of the mucous membrane and interfere with the secretion that is placed in the mouth for a definite physiological purpose. I cannot conceive that that can be true. I cannot conceive how Dr. Cook, or any set of men with Dr. Cook, is going to prove that the condition of the cells' contents which he claims have been so injured by the use of mouth-washes and medicines, did not exist in the cells before the washes were used and the experiments made? Indeed, he says if you will take a case of pyorrhœa where the gums are spongy you will find that mouth-washes produce a changed and depraved condition of the mucous membrane of that tissue. How does he know the condition was not there before? The fact is, in most mouths considered healthy you will find some degeneration of cells. I think his conclusion is extremely lame. How the tissues beneath the epithelial layer of cells are to be prejudiced I cannot conceive. That a mouth-wash taken into the mouth, rinsed around and then removed, a meal is eaten an hour afterwards, and on account of the fact that this mouth-wash has been used the action of the pancreatic juices is injured, is the most remarkable statement of all. That is the worst yet. Indeed, we know that any irritant brings to the point a greater amount of that digestive fluid, and that it can be so changed by the evanescent effect of a mouth-wash as commonly used, is beyond my comprehension.

I am glad I listened to this paper. I am interested in the investigations Dr. Cook has been carrying on. Many times he and I have clashed, and especially did we clash when he thought he had found the specific micro-organism of pyorrhœa. A man who can project upon the screen of our imaginations such a wonderful assumption and theory as he has, and then substantiate it to our dissatisfaction, convinces me there is something in store for Dr. Cook that will make him about the biggest man in the world. *There is* something in store for Dr. Cook. He works hard and assiduously, and his heart is in the work. Though we may not believe the theories he has brought to us today about the deleterious effects of mouth-washes, he will sometime bring to us something on which we will all agree. I am very glad to have heard the paper.

DR. TILESTON, LOUISVILLE: I think it is a very fine paper, and I believe all he says. I think everything Dr. Cook says is all right. I believe he knows more about this subject than Dr. Hunt or Dr. Patterson, because he has studied it, and the other gentlemen are talking through their hats. He is going to tell us all about it now, and I think I will learn something I never knew more. I haven't anything original to say on the subject.

Dr. Ross: With regard to the detrimental effects of some of the proprietary preparations as spoken of by Dr. Cook, I will mention a case that has recently come to my notice. The patient presented a decided erosion of the teeth, which he felt was due to the action of a tooth soap which he had been using for about three years. He always noticed a gritty sensation, and became convinced that the soap contained pumice or something of that nature.

From personal tests I have made, I am of the opinion that any agent sufficiently strong to exercise a germicidal action will, if used regularly as a mouth-wash undiluted, exercise an injurious effect on the mucous membrane, and probably bring about a chronic pathologic condition.

I have enjoyed Dr. Cook's paper very much, and it certainly stands for a portion of the results of a vast amount of work. An extended discussion would necessitate, first, a careful study of the paper, and I have been denied that pleasure. I look forward to the study of this excellent paper with great pleasure, and anticipate considerable profit to myself.

Dr. Hunt: In my anxiety to pick a few flaws in Dr. Cook's paper, I overlooked the latter part of it. The latter portion of it is really quite a sane document. It contains a number of good suggestions, all of which we have heard before, and all of which we have practiced for many years. I would like to know how a mouth-wash used on a toothbrush is going to affect the pancreatic juice.

Dr. Cook: I always enjoy very much having Hunt and Patterson get after me, because I never can think without some such incentive, and the reason I presume I did not write this paper better was because they had not been after me. Consequently, I am better prepared to write the paper now, and if they will permit me to take it back I will write it again, and without changing any of the essential points in the paper.

I avoided giving any of the detailed experiments of this work. for the simple reason that a society is not interested in the details of how you anæsthetize the dog and extract the pancreatic juice, and how you remove the salivary glands and the mucous glands from these animals. The dogs were taken into the dog hospital at the university and taken care of in the usual way of caring for these animals. These mouth-washes were used three times a day on the dogs, and then portions of the tissues were removed and stained in the usual way. One of the interesting things about it that we found, something that will probably be of more value to the histologist in the future, was that, inasmuch as we found tissue when it changed from a physiological to a pathological condition, the stains that were used were indicative of whether it was alkaline.

Dr. Hunt: Which mouth-wash did the dogs like best.

Dr. Cook: Well, they liked mine best, really. It is a very easy matter, as one will find from the work of McLaughlin, and others, on the degeneration of tissue, to produce degeneration of the connective tissue if the submucous cells are degenerated. They can be removed from the mouth of anybody who wishes to take the time to scrape them off. Of course, it will make a little sore, but with my mouth-wash you can cure it.

There is so much to be said with reference to criticism of the paper that it seems like taking up too much time to even touch upon the important points. The first part of the paper, which had no sense to it—I expect if I had sent it a little earlier I would have got the same reply the man got who sent his manuscript to Mark Twain and asked if it was worthy of publication. Twain wrote back: "I have read with great interest your article, and in reply I would say I learn that fish is good brain food, and I advise you to eat a whale and re-write the article." I did not take any chances with Hunt, so did not send a copy early enough for him to write back. I brought these samples along to give to Hunt and Patterson. This formula is not a secret one at all. Any one who would like to write to the Kenwood pharmacy can get it. There is nothing remarkable in it, and you cannot use this any more than you can use other things in a great number of cases.

One point was brought out, I think a good one, and that is the determination of the degeneration of tissue in those pyorrhœa pockets. Many times dentists use these washes and then give them to the patients, and tell them to use them and brush their teeth, or give them a syringe to shoot it down in the pockets with. I simply mention that to say in those cases you could not use it. It is not good for such cases at all. Any of those agents wouldn't help to cure the tissues, but would cause the degeneration of other tissues that were probably in a healthy condition. Much of this will be published more in detail at some time, but I thought it useless to bring in here much of the details, as it would make too long a paper. The work was not done for the purpose of advertising mouth-washes. We found two mouth-washes that were in a great many cases better than mine. The mouth-wash I have here was prepared from a formula that has been revised and gone over a great many times. The tincture of ratanhæ is a vegetable compound, and was placed in there to have a stimulating effect without irritation and to counteract the effect of the acids I said were not good. You will remember I said in my paper to not use these agents without something of that nature, something of a vegetable nature that has an astringent effect, that causes regeneration and counteracts the effects of benzoic acid.

Dr. Hunt: What free metals are there in mouth-washes?

Dr. Cook: Zinc.

Dr. Hunt: In metallic form?

Dr. Cook: As nearly metallic as you get it in fluids.

I am very glad to be at the Indiana State Society, and I am sorry my paper has not been of more help to you than it has.

A CASE OF ORAL SURGERY FOLLOWED BY ORTHODONTIA.*

BY WILLIAM LETE SHEARER, D. D. S., OMAHA, NEBRASKA.

I wish to apologize in advance for the preparation of a paper, relative to the history of a case of oral surgery, followed by orthodontia, that came under my observation more than a year ago. It has been thought by many other members of this society to be of some little interest to you as well as it certainly has been of great interest to me.

Somewhat more than a year ago the patient called upon me for advice regarding the appearance of his mouth, and, by the way, previous to that time it had been my pleasure and fortune to see this condition existing, from time to time, for the past several years, and now, as he has become a member of the medical profession, it brings this case a little closer to us. After studying this condition for some little time I determined to make an exploration of the growth, which might be termed a supernumerary. Thereupon I drilled a small opening into the center of the growth and put an application into it for the devitalization process. After this was completed I discovered several small openings leading into the different malformed non-bifurcated roots, as it were. Now, when this had been accomplished and further examination made above the apical space of this so-called growth, there was noticed a slight enlargement or swelling, which was suggestive of the existence of the mate to the other central in its positon. An anesthetic was then administered and an incision made in the gum, the process drilled through and a tooth located fully one-half inch above the alae of the nose. Now the process was cut away to allow the advancement of the tooth primarily, and secondarily, to ascertain whether there was any connection between this growth and the tooth. After a couple of months passed it was noticed that the tooth was slowly coming down, this in turn proving conclusively that there was no connection between the growth and the incoming left central. Chloroform was administered and the growth removed at once in a body; and the surrounding process cut away posterior to the incoming central incisor to give it as much of an opportunity as possible to come down to its natural position. After a couple of months it came through as far as you see there in Fig. 1, and thus allowing the fitting of a cap to the crown and other appliances constructed to fasten it to, that pressure might be brought to bear sufficiently to hasten the advancement as rapidly as judgment would permit. The color of the growth when removed was of a pinkish red, possibly due to the action of arsenic or other agents used in the process of treatment, along with exploration.

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*Read before the Nebraska State Dental Society, 1906.

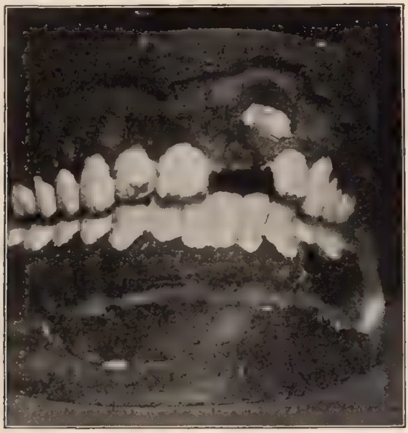

Fig. 1

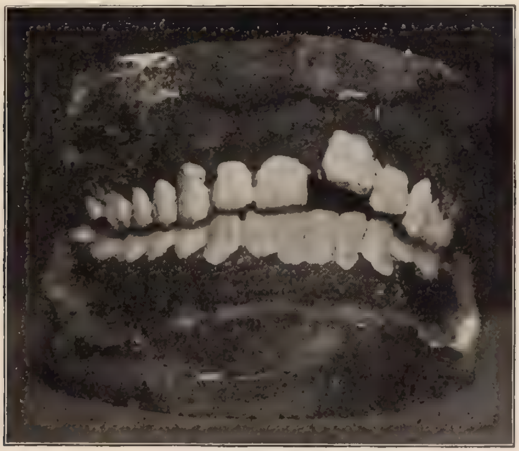

Fig. 2

The case is now well under headway, Fig 2 showing the case as it is today, and before many months may be seen in its perfect restoration and the central in its normal position in the mouth and the facial expression restored. I am only sorry that this case could not have been completed so as to show the ultimatum of the prognosis.

Now, to ascertain the source of this condition is just a little difficult. It is possible that it came from a germ from the left superior cuspid, or it might have had its origin from a germ of the superior left third molar. Now the fact that the superior left third molar is emptied, it might lead you to think that it were the third molar germ, and yet, from its freaky appearance, I can scarcely believe it to be the third molar. However, there are cases on record where it is claimed the third molar came forward to the anterior of the jaw; but on the contrary, I think it a decidedly abnormal development of the epithelium or a germ from the superior left cuspid. The superior right third molar is not erupted, so it might be thought that it were a freaky superior right third molar.

I sincerely hope that this case may be of some interest to you, and any light relative to its origin will be greatly appreciated.

EXTENSION BRIDGES.*

BY DR. J. W. MANNING, NORFOLK, VIRGINIA.

The holding of high ideals and theorizing has been of great practical value, but these same ideals and theories are not always applicable to the cases as they present themselves to us. Therefore, we are often brought face to face with conditions that call on us to consider, not what we *would* do if conditions were thus and so, but what *can* we do with it as it is?

It is to the consideration of cases of this kind that I would call your attention for a few minutes.

A typical case, and one familiar to you all, is that of the inferior maxilla, molars all missing, the others in place. The question is, what is the practical thing to do in such cases. I would say, build extension bridges.

I would not here enter into a discussion of the relative merits or demerits of the suspension or the saddle bridge; that is another story. You can use your own judgment as to which is best to use. The object of this paper is to deal simply with the idea of *extension.*

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*Read before the Virginia State Dental Society, 1906.

I will merely state that my experience has been with suspension bridges.

I suppose there is no question in the minds of any of you as to the propriety of swinging any one tooth to another anterior to the molars unless possibly it be a central or cuspid to a lateral. I have never had a case of this kind that has not given entire satisfaction. So I will not dwell on that phase of the subject.

I will mention two cases from my practice. Shortly after I came to Norfolk, nearly five years ago, Mrs. M. presented herself with second bicuspid and molars missing in right side of lower jaw; on left side molars missing, second bicuspid in place. crown of first bicuspid gone entirely, root hollowed out by decay, but remaining portion good and solid, though diseased and abscessing. She had been advised to have it extracted six months before. I mention these facts only to show what may be done even with a poor tooth to use. I treated and cured the abscess, filled apex of root, used platinum pin, packed around pin, and built up with amalgam; made gold crown for it and second bicuspid, soldered both solidly together, extended from them two dummies of about the size of bicuspids, placed it in the mouth. That has been her entire dependence for masticating, which she has been able to do very satisfactorily. I have heard her remark several times that she would not take a hundred dollars for it.

Another case is that of Mr. E., presented himself more than four years ago. Molars and bicuspids missing on right side lower, second bicuspid and molars missing on left side upper. I crowned cuspid and first bicuspid, extended two dummies. It has been in constant use since. Patient says he eats a pound of steak every day.

From these cases, and many others that I could mention, all of which are perfectly serviceable and satisfactory, I conclude that the practical thing in such cases is extension bridges.

* * *

NITROUS OXIDE.

BY CHARLES K. TETER, D. D. S., CLEVELAND, OHIO.

One of the greatest, if not the greatest, achievements of the medical profession was the discovery of modern anæsthesia.

This discovery was not the work of one man, or of one time, as it takes the combined effort and experience of great minds to perfect such great achievements.

I wish to direct your attention to nitrous oxide, the first of the anæsthetics discovered. This agent has never been universally adopted, owing to the difficulty of obtaining it, and the necessity of a more or less complicated apparatus for its administration.

The very rapid recovery, which is characteristic of this anæsthetic, has necessarily restricted its use to momentary operations.

This objection has been partly overcome by the discovery that oxygen can be administered in definite proportions with the nitrous oxide, and anæsthesia can now be prolonged to the completion of any operation. As this is becoming more fully understood by the profession, this anæsthetic is used today in general surgery more than at any preceding period since its discovery.

The question arises: What is the physiological action of this agent upon the nervous system, and what changes, if any, take place, that anæsthesia results? This is a question of which there is still much need of research and experiment, as there is but little definitely known. From my limited study and experience with this agent, I have formulated the following opinions, which will not settle this subject by any means, and may not lead to the true solution, but the theory I believe correct.

Chemistry tells us that nitrous oxide is a chemical compound, the symbol being N_2O, therefore being composed of two parts nitrogen and one oxygen.

It resembles the atmospheric air in its constituents, but while the air contains nitrogen and oxygen, it is as a mixture; while nitrous oxide contains it as a chemical compound. This compound is not easily broken up, and in order to support combustion a high temperature must be raised.

A piece of red hot wood will rekindle and burn brilliantly in this gas, but the combustion that takes place is supported by the oxygen which is liberated by the heated wood, and not by the nitrous oxide. Nitrous oxide, as other chemical compounds, does not resemble necessarily the elements of which it is composed, and it takes on an action peculiar to itself.

As a higher temperature than that of the body is required to separate these elements, the organism does not derive any oxygen from this compound when it is absorbed into the system.

This agent, when administered pure and free from air or oxygen, has a double action: that of asphyxiation and that of anæsthesia.

Experiments have shown that when nitrous oxide is administered to animals, respiration and the heart's action are accelerated, then depressed and paralyzed; and death ensues from asphyxiation; but much more rapid than would be the case if a simple asphyxial agent was being used, or if the trachea was ligated, showing that we have the combined effect of an asphyxial and anæsthetic agent.

As nitrous oxide is not decomposed at the body temperature, the organism does not derive any oxygen from this source, and the gas takes the place of the free oxygen in the blood, carbon dioxide accumulates, and asphyxiation ensues. Anæsthesia is also taking place, and in some cases anæsthesia will precede asphyxia (but with pure nitrous oxide asphyxial symptoms will manifest themselves before complete anæsthesia takes place, and this symptom has nothing to do with anæsthesia.

If atmospheric air is administered in combination with the gas, we can prevent asphyxiation, but it will be difficult to obtain complete anæsthesia. We can and do obtain unconsciousness in a great many cases with this method, especially if the patient be susceptible to the anæsthetic; but profound surgical anæsthesia, where muscular movement and the reflexes are to be abolished, can not be obtained. The reason for this is, that in order to supply the organism with a sufficient amount of oxygen from the atmospheric air, the amount of nitrous oxide that can be diffused in the alveoli of the lungs is diminished to such an extent that the tension of the agent is not great enough to bring about profound anæsthesia.

We can induce and maintain analgesia with this method very satisfactorily, in which stage a number of operations of minor importance can be performed painlessly.

In order to obtain surgical anæsthesia, and maintain it for prolonged operations, oxygen should be added in definite proportions continually with the gas. The amount of oxygen will vary with the different types of patients, and the length of the inhalation. There is unfortunately no rule which will apply to every case, but with experience the anæsthetist will be able to recognize symptoms which will indicate more or less oxygen. By using oxygen instead of the air we are able to use a much greater proportion of nitrous oxide.

We will say, for an example, that we have a patient that will require eight parts of oxygen with the gas to prevent asphyxial symptoms.

If we are using the atmosphere to obtain the oxygen from, it will be necessary to admit about 40 parts of the same to derive the eight parts of oxygen required. In doing this we would displace 40 parts of the nitrous oxide, leaving only 60 parts of this agent.

We would have here 32 parts of useless nitrogen, while if we have the pure oxygen, we can admit eight parts, and having no nitrogen, the other 92 parts are nitrous oxide.

It can readily be seen why we can obtain relaxation of the muscles, and true anæsthesia, when the pure oxygen is used in definite proportions with the nitrous oxide, where this would not be possible with the atmospheric air.

The superiority and the practicability of the anæsthesia obtained with this method over that with the atmospheric air is so great that I never use any other method even for momentary operations.

This anæsthetic is chiefly indicated when there is any contra-indication to ether or chloroform. (There is always contra-indication to these agents where the sitting position is maintained) ; it is also indicated where a rapid recovery free from nausea and exhauston is desired, as when an operation is performed in an office, and when for any reason the danger needs to be reduced to the least possible extent.

I will not numerate any class of operations that would indicate this anæsthetic, although this would have a bearing, but the condition of the patient is of major importance.

The better the patient's health and general condition the less this anæsthetic is indicated for major surgery.

It is especially indicated for an enæmic, debilitated, deseased or an emaciated individual, when from any cause the vital forces are depressed. This anæsthetic is taken into the lungs at first with a small percentage of oxygen, as an allowance must be made for the air that the lungs already contain, and as inhalation progresses the amount of oxygen is increased in accordance with the symphonal indications; thus anæsthesia can be maintained to completion of the operation.

This agent is absorbed by the blood, and its entrance, sojourn, and exit are identical to those of oxygen.

The rapidity of absorption of the gas will depend upon the tension and diffusion in the alveoli of the lungs, the tension will vary with the temperature of the agent and the barometric pressure; therefore more of the agent will be required if it be used at a low temperature, that would be the case if the temperature was near that of the blood.

The initial effect of the gas as well as that of all other anæsthetics is to increase the depth of respiration, and the tidal air in the lungs may be increased from 30 to 90 or 100 cu. inches, this greatly increases the diffusion of the gas, and absorption takes place very rapidly at this stage, and anæsthesia soon ensues. The fact that the amount of gas necessary to induce anæsthesia does vary with the tension and diffusion as above referred to, does not indicate that a greater or less amount of the agent is necessary to effect the neurones. This depends upon the facility with which the agent may reach the central nervous system and the length of time it may be retained there. I am not fully convinced just what action takes place in the nerve cells that bring about anæsthesia. Opinions differ greatly on this point, but I think anæsthesia is due, not to any chemical change in the protoplasm of the nerve cells, but to interference with oxidation to such an extent that the functional integrity of the nerves is temporarily impaired. With chloroform I think there is some chemical action takes place in the protoplasm, as well as interference with oxidation, but I do not believe this to be essential in inducing anæsthesia.

(To be Continued).

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THE ETIOLOGY OF THE DESTRUCTION OF THE ALVEOLAR PROCESSES AND THE CONSEQUENT LOSS OF THE TEETH.*

BY DR. EDWARD EGGLESTON, RICHMOND, VIRGINIA.

I wish to assure you that what I now have to say regarding the true causes of the troubles indicated in the title of this paper is original and entirely the result of close observation extending over an experience of fifteen years.

The popular conception of the nature of the diseases which cause the impairment and ultimate loss of the dentition is almost entirely erroneous, in that this conception generally treats what is known as Riggs' Disease or Pyorrhœa Alveolaris as a local affection, or, I might say, infection, to be dealt with locally, and even essays in some instances to cure the trouble by local medication assisted by such surgical or mechanical means as the careful removal of calcareous deposits, etc.

This condition I now conceive to be due to constitutional causes.

I do not recall a single case in which the trouble originated from purely local causes, in the mouth of a healthy individual.

What are these causes? There is a growing tendency among those practitioners who are getting out of the rut to ascribe the blame to uric acid, and in this conception they are partially, and only partially, correct.

Entirely too many human ailments have been ascribed to uric acid.

Nine-tenths of these troubles, I am satisfied, are due to constitutional causes other than uric acid in excessive quantities, although I consider that about one-tenth of these cases are due to this form of derangement.

Broadly, then, I will say that the condition in question is the result of a failure on the part of one or more of the vital organs of the individual to properly perform its function, or their functions, as the case may be, and thus lowering the tone of the whole organism, causing local capillary disturbance and consequent congestion, inflammation and suppuration of the soft tissues, including the cellular bony supports of the teeth.

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*Read before the Virginia State Dental Society, 1906.

The heterogeneity of the human organism is wonderfully great, and all the details of variation from normal performance of function is by no means fully understood by the greatest of physiologists and pathologists, as they will generally confess; but broadly I may give the general causes as follows: Some functional disturbance of one or more of the following organs: the liver, kidneys, heart, or lungs.

The imperfect performance of function by any one of these vital organs immediately lowers the vital tone of all the tissues of the body, and this condition is promptly followed by an imperfect elimination of waste products, when we have, floating in the circulation more or less poisonous and irritating matter, which causes the greatest irritation in the capillaries and consequent congestion in those localities where capillaries are numerous—thus the gums become perhaps the most common seat of this local congestion.

Now, as you all know, there are two distinct ways in which this congested condition may do the damage—first, the irritation may cause the absorption, or resorption, of alveoli, just as the irritation of the impingement of the advancing permanent teeth cause the absorption of the roots of the temporary teeth, and secondly, the destructive process may advance by the familiar stages of irritation, inflammation and suppuration of all the tissues that contribute to the support of the teeth.

In the brief foregoing statement I have set before you the real truth regarding the nature of this dread condition, and if I had the time I could relate from memory the history of the development of these local destructive processes, which so sorely afflict the human race; I could show you cases resulting from various forms of liver trouble, and others the direct result of kidney trouble, and again, cases having their origin primarily in heart disease, etc.; but of course the vast majority of these cases are the result of a complication of disturbance of the function of more than one of these organs, as any serious disturbance of any of the four great vital organs of the body which I have mentioned very soon entails more or less trouble with some other, and this fact is more particularly true of the liver and kidneys.

Any serious liver trouble is almost sure to cause more or less complication of kidney trouble, etc.

For my own part, I am entirely satisfied of the correctness of my position, as outlined; but to those who still think differently I would offer, as a testimonial to the accuracy of these observations, the fact that the much-talked-of irritation of calcareous deposits is so frequently entirely absent in these cases.

You will recall that many of these teeth come away with roots sleek and some even with a polished appearance.

This fact is in itself a contradiction to the theory of the irritation of these deposits as the principal cause of recession of gums and absorption of alveoli.

Furthermore, I am persuaded, and to my own mind have abundant proof that this deposits under the gums of a dark-brown hue, and variously described by dental writers as sanguinary, crescent, etc., are entirely distinct from salivary deposits, and not only is not the primary irritant and cause of this trouble, but is an after effect.

The violent congestion of the peridental membrane results in the exudation of the blood and the breaking away simultaneously of a certain part of the peridental membrane.

Upon the surfaces thus exposed these deposits are found after the damage is done.

I do not mean to say that this deposit does not act as a secondary irritation and aggravate the troubles already present; but this deposit is never the primary cause of gum troubles, as many still believe.

This condition is the most important which we, today, as scientific men, have to contend with, as it has not been entirely subjugated, as has caries, to the skill of the operator, and as the destruction of the dentition is both more rapid and more certain when left without treatment than is caries.

As to the possibilities of regulating this trouble, I contend that if it comes to us in time we can prevent the loss of the teeth and preserve them in usefulness, comfort and appearance, permanently, from the ravages of these local conditions; and if I am able to convince one man, by the presentation of this paper, I shall feel amply repaid for the effort.

Do not understand me as claiming that I can cure this disease, for I am talking only about the local treatment of one of the manifestations of a constitutional derangement.

CONSTITUTIONAL TREATMENT.

The treatment of this trouble should begin with some education of the patient in the matter of diet.

They should be taught to eat those foods which are least injurious in their particular kind of trouble, and at the same time not to deny themselves proper nourishment, either by too rigid limitation of variety or by too small a quantity.

Of course this dietary regulation should be preceded by an exhaustive physical examination; but this cannot always be had, as few doctors are in the habit of doing this, and patients reluctant to seek it.

Following this examination and regulation of diet, nature should usually be assisted by the discriminate use of drugs, constitutionally administered.

To this proper exercise should be added, and this will depend entirely on the nature of the disorder and the constitutional tendencies of the individual.

The best results are to be had by a thorough co-operation of the general practitioner with the dental specialist, and in this connection it is greatly to be desired that dentistry be elevated so as to place the operator on a plane of perfect professional equality with the general practitioner of medicine and surgery.

However, until dentistry is elevated to the standard of a specialty of general medicine and surgery we would do well to read broadly and keep so informed as to give our patients such constitutional treatment as is indicated when we cannot command the full confidence of the general practitioner into whose hands the particular patient would naturally fall, or when we have not confidence in the ability of the family physician.

I will not attempt to enter into the remedies to be used in constitutional treatment, as they, of course, must be administered in accordance with the diagnosis in each separate case.

LOCAL TREATMENT.

Now we have come to the main question. First, I will say that in all cases, no matter what the cause may be, we should proceed forthwith to relieve the local congestion, when such congestion exists, by such means as free blood-letting, the use of compressed air atomizers, vigorous brushing with stiff brushes, and a massage by means of the thumb and forefinger, first by the operator himself, then kept up by the patient.

One of the best hygienic lessons to teach the patient in these cases is to take an antiseptic fluid into the mouth and force it back and forth between the teeth, by the use of the muscles of the cheeks.

In case of irritated and suppurating surfaces, such parts should be cauterized with trichloracetic acid, 50 per cent., at intervals of a week, until a normal condition is restored or approximated as nearly as possible.

I cannot lay too much stress on the frequent use of antiseptic fluids with a high pressure atomizer, and this part of the treatment cannot be carried to excess.

Now comes what I may term the heroic treatment, and it is by far the most essential part of the preservative means at my command.

I do not advise this heroic treatment in all cases; if they come to us when the trouble first manifests itself, the heroic treatment is not necessary, but very frequently when the patients come to me, especially for treatment of this trouble, many of the teeth are loose and often some are already gone.

In these cases, the pulps of all teeth should be removed; do not try to compromise with the trouble by removing the pulps only of the very loose teeth, for the following reasons: Firstly, if you do such operations, the teeth that are still firm will in all probability become loose if their pulps are allowed to remain, and secondly, the unaffected teeth are needed to support those already in trouble, and again, if you remove the pulps only of the loose teeth and attach them to support each other, you have to a large extent burnt the bridge behind you and rendered far more difficult a complete operation, which will be indispensable if the dentition is to be permanently preserved.

In this situation we are confronted with a desperate condition, and heroic means are clearly indicated, so I recommend to you the complete and thorough removal of all the tooth pulps.

This operation alone is of the greatest benefit to the teeth, when those tissues which afford them support have become to any considerable extent damaged or destroyed.

As to the exact scientific nature of the histological changes following the removal of the tooth pulp and the resulting tightening of the tooth in its socket, as well as its partial immunity from future trouble of this kind, I will not attempt to lucidate in this connection, it not being germane to my present restricted subject.

However, the fact remains that these beneficial results follow this operation, and notwithstanding the several objections to spending a great deal of time and effort on any one patient, still these objections are not, in my judgment, valid when weighed against the possible benefits to the patient.

THE MECHANICAL SUPPORT OF THE TEETH.

The next step in this practice is to mechanically support every tooth left in the mouth and from which the pulp has been removed, and in doing this the pulp chambers are used to carry the support, and it is possible by this means to practically conceal the fact that any operation whatever has been performed, and in addition to restoring the teeth to usefulness we at the same time get the highest possible esthetic effect, that of entirely concealing the art.

This support is made in many sections of several different metals, including gold, platinum and iridio-platinum, and finally the entire support when placed in position in a single piece holds every tooth in the arch, in an absolutely firm and immovable position.

As to the nature of this mechanical support, I can best tell you of the detail of its construction verbally, and separately from this paper, and if it is your desire I will explain it in detail before you discuss the subject.

This last named operation, the mechanical support, is perhaps the greatest single item in the preservation of the dentition in those cases under consideration.

PROGNOSIS.

I do not wish to claim too much for this treatment of what is commonly and erroneously known as pyorrhea alveolaris, and yet I look upon the series of operations and medications which I have reviewed in your hearing, and when followed up with proper hygienic precautions, as permanent, so far as any dental operation can be considered permanent.

I have never yet lost the teeth in any case so treated, and some of them have been standing more than ten years.

Of course I do not mean to say that if I continue in the practice many more years, I would not in some cases see all the teeth lost after being thus treated, as I would continually attempt more and more difficult cases, and in the natural course of events some cases would finally have to be removed from the patients' mouths.

Again, I do not make any claim of superiority in this work, nor that I am securing results which the rest of you cannot; all of you can do what I have told you if you will.

ASHEVILLE RESOLUTION.*

BY DR. C. S. PARKER, NORFOLK, NEBRASKA.

In presenting this subject for your consideration, and, it is hoped, discussion, it is with the feeling that interest in it has grown so rapidly of late that the time is near at hand when some action should be taken by this organization to join in the movement whereby Nebraska can have her licenses recognized by other states, and in turn recognize theirs.

The dental profession has grown marvelously in the past decade. Those of us who began our common task ten years ago are keenly alive to this fact. We are aware that to keep "in the game," if you please, necessitates a continual effort for to be familiar with current dental literature, and to possess a fair knowledge of what is going on in the world of dentistry requires the expenditure of considerable time of itself. We do not deplore this growth—we are proud of it—proud of our colleges, proud of our journals, proud of our numbers and proud of our contributions to this busy world's work. But as growth involves elimination and appropriation, so the expansion and larger development of our knowledge has forced us to abandon some lines of practice and adopt others, and the past decade has witnessed almost a revolution in the operative practice of dentistry.

Will any one say the next decade will see any diminution of our activity and advancement? There are many questions awaiting solution and many more will arise as these are solved.

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*Read before the Nebraska State Dental Society, 1906.

Among the questions before the profession at this time, one of the most important to my mind is this one of the interchange of licenses between the states.

INTERCHANGE OF LICENCES.

In January of 1895, the State Examining Board of New Jersey met with members of the boards of the eastern and Atlantic states and discussed, among other things, this question, and thev determined to work for the exchange of state licenses by the adoption of similar laws in the different states, with similar requirements, and an examination that should be up to a certain standard. New Jersey, up to this time, had probably the most exclusive law on the statutes. It was a veritable Chinese wall, and almost as impregnable. But New Jersey has taken the initiative in this matter, for three years ago, at Asheville, Dr. C. S. Stockton, of New Jersey, introduced a resolution now known as the Asheville Resolution, and awarded the following year at St. Louis, reads as follows:

"Resolved, That an interchange of license to practice dentistry be, and is hereby recommended to be, granted by the various state boards, on the following specific conditions:

"Any dentist who has been in legal practice for five years or more, and is a reputable dentist of good moral character, a member of his state dental society, and who is desirous of making a change of residence into another state, may apply to the examining board of the state in which he is registered for a certificate of recommendation, which shall attest to his moral character and professional attainments, and such certificate, if granted, shall be deposited with the examining board of the state in which he proposes to reside, and the state board in exchange thereof may grant him a license to practice dentistry."

This, to my mind is the most rational and fair basis for a universal interstate exchange that has yet been presented.

The criticism is made that the five years' residence clause would work a hardship upon those professional brethren who, for various reasons, are acting in the capacity of assistants. Certainly they would not be damaged, for their condition would be no worse under the provisions of this act than now. The further criticism is made that the clause making it obligatory for the applicant to be a member of his state society is a move to swell the number of these societies, offering the interchange certificate as bonus. This hardly seems fair criticism, for while it may be true that many very good men are without the pale of the state society, it is equally true that the men who comprise the membership of these organizations are unquestionably the leaders of dental thought and the vanguard of dental progress throughout the world, and that membership in them stimulates and enriches and indicates a lively interest in all that makes for better dentistry; so it does not seem that this clause of the resolution is open to any well-merited attack.

The District of Columbia has adopted the Asheville Resolution, and the legislature of the state of Connecticut has incorporated it in its statutes. Many state boards have discretionary power vested in them by law, and can exchange if they see fit, notably, of course, New Jersey, who now exchanges with six other states, and who stands ready and anxious to exchange with any state on the basis of the Asheville Resolution.

I would like to see Nebraska adopt this resolution. The question is, after all, one largely of fraternalism and reciprocity. No one will contend there is any difference in the manner of taking care of the teeth of the inhabitants of New England and the denizens of California. Their teeth have the same old aches and are taken care of in the same way; why, then, as the president of the National, in his address at Buffalo, so pertinently asks, should the dentist be deprived of the right to earn his living in any state of the Union?

I submit to you, gentlemen, that it is not fair; it is not democratic; it is not, if you please, American. The attempt has been made to show you that we are a busy lot of men, that the nature of our life work requires constant change and modification and readjustment; that ten years may so upset our methods and teaching as to require a complete change of procedure in practice, and that to compel a man who has been in practice a number of years and has forgotten much of the theoretical and technical part of his training to submit to an examination in these branches, should he desire to move to another state, is not right, and it is confidently hoped something will be done, so far as our own state is concerned, to remove this blot from our escutcheon.

DISCUSSION.

Dr. Norman H. Morrison, Red Cloud, Neb.: When the executive committee placed me on the program to open this discussion, I presume they were prompted to do so by the interest I had shown in the subject for the past year, and indeed I am interested, and every member of this society should be equally interested.

I have given the subject of interchange of license considerable thought, have read every article published I could find upon the subject, have talked personally and corresponded with several of its foremost advocates in the state of New Jersey, and I challenge any one to form a fairer or more just plan of interchange than Dr. Stockton has offered in the Asheville Resolution which was just read, and under the conditions as they now exist. Dr. Parker calls especial attention to the five-year clause. Allow me to give you a little comparison:

Our board of examiners, under the present system, announce that an examination will be held on a certain day; an applicant files his credentials, and on the stated day appears for an examination; he possesses a pleasing appearance and manner, makes a fair showing in his examination because it is his only ambition to pass said board, and he has applied himself for this sole purpose. He is destitute of all principle, has no scruples, and at once opens up a suite of New York or Boston dental parlors, because he is particularly adapted for this kind of chicanery. Along with the former applicant comes one who has been a light in the profession in a certain community for twenty years or more; he possesses not the captivating manner of the former, but has a good, true heart within; he is conscientious and has applied himself to his profession from a desire to be of the most possible service to mankind; but from his many years in the profession, he is unable to pass a satisfactory examination in the theoretical branches which the board, in order to comply with the state law, must promulgate to him. If granted a certificate at all, it is with considerable embarrassment. Now, had our board authority to grant certificates after the plan of Dr. Stockton they could have had a history of these men from the time they entered the profession, and must have for the last five years at least.

The result would have been that the latter, from his long residence in one community, recommended by his fellow practitioners, and his state society to his own board, and through them to our board, he would have come to our state and have been received by our board with open arms, and the profession feeling that he had made valuable acquisition to our ranks, while the former, not able to get the proper recommendation to induce his board to recommend him to us, was an outcast from his society and was shown up in his true light before our board, who immediately beckoned him back, crying aloud, "Nay, nay."

The clause requiring membership in the state society I deem of the utmost importance, notwithstanding it meets with considerable disapproval, but the essayist has met the issue so forcibly I will not discuss it further than to add my hearty endorsement to all he has said, and I believe Dr.

Parker is but expressing the sentiment of the great majority in the profession when he says, "It is not democratic, and it is un-American for a member of the dental profession to be deprived of the right to earn his living in any state of our Union."

Now, if we can but arouse the members of the profession to manifest the interest they should have in this subject a national reciprocal relation will be the laurels that crown our success.

SOMNOFORME.*

BY A. O. HUNT, D. D. S., OMAHA, NEBRASKA.

Anything relating to the use of anæsthetics in a dental practice is always of absorbing interest to the profession. This new anæsthetic, "Somnoforme," was first given publicity before the Association Francais for the advancement of Sciences by Dr. Roland, director of the Dental School of Bordeaux, and late house surgeon of the Paris hospital.

The data presented here are compiled from a paper presented by Dr. Aguilar, of Madrid, Spain, before the Fourth International Dental Congress at St. Louis, in 1904, which contains the result of Dr. Roland's clinical and laboratory experiments, as well as Dr. Aguilar's experience in his own and hospital practice in Madrid, with a report of results in the use of Somnoforme in various European hospitals. Also the clinical experience with this anæsthetic as reported by Dr. Paden in a paper read before the Chicago Medical Society, April 11, 1906.

The confirmation of the laboratory experiments by the record of 1,500,000 favorable cases shows the advantage of this anæsthetic over chloroform, ether and nitrous oxide.

In order that an anæsthetic should enter the respiratory tract and act on the nerve centers, it must be in the gaseous form: and the rapidity of its absorption is in direct ratio to its degree of diffusibility. This is the force which causes the blood corpuscles to become saturated with the narcotic vapors instead of the oxygen; therefore the action of the gas on the nervous system will be rapid in proportion to the rapidity of saturation. Dr. Roland presents the problem of anæsthesia in the following propositions:

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*Read before the Nebraska State Dental Society, 1906.

First: To produce anæsthesia it is necessary that the tension of the anæsthetic gas be superior to that of oxygen, so that it may, in a certain proportion, take the place of the latter in the pulmonary alveoli.

Second: The tension of a gas being proportionate to its volatility, the more volatile the gas is the easier can it be made to take the place of oxygen.

Third: The ideal anæsthetic, if such is attainable, would be the one behaving in its conditions of entry, of sojourn, and of exit from the body, as does oxygen.

If we follow the course of oxygen in the body, we see that the red blood corpuscles, after becoming charged with oxygen in the lungs during inhalation, distribute it to the tissue throughout the body. The blood corpuscles have their period of activity during their course through the arterial system. When the oxygen has been given up, the corpuscles return through the venous system to the lungs in an inert and dormant state, and there, by contact with oxygen, resume again their former activity. Now, as about 25 or 30 seconds are necessary for a red corpuscle after leaving the heart to return to it, we can say that in the diagrammatic division of the circulation in two parts, one arterial and the other venous, the action of the oxygen would last from 12 to 15 seconds; therefore an anæsthetic capable of being absorbed practically in the same manner as oxygen should produce its effect in about 15 seconds, and when the administration is discontinued it should be eliminated in proportion, as the corpuscles of the blood come again into contact with the oxygen. This, almost to exact precision, is what takes place with somnoforme. In the study of the physiological action we observe that somnoforme produces the following phenomena:

THE CIRCULATION.

Somnoforme has a powerful action on the sympathetic system, increasing the arterial tension and the frequency of the cardiac contractions. A series of curves of the blood tension taken with the sphygmograph of Marey and the sphygmomanometer of Potain on the radial artery of Dr. Roland showed in 20 minutes the variation of from 13½ of normal blood pressure to 14½, 17, 17, 13, 14, 15, 14, 14, 13½ during, through, and after the anæsthesia. The pulse, which formerly was 76 per minute, presented in the same observation a frequency of 76, 84, 76, 68, 68. Respiration, which. when normal, was 16 per minute, went up to 28, 20, 19, 20, 20. And a careful microscopical study of the blood of subjects under somnoforme showed that the anæsthesia of from 5 to 18 minutes' duration produced no important modifications in the blood. The urine of the anæsthetized persons also remained normal.

THE NERVOUS SYSTEM.

Microscopical studies of the cerebral centers show the modifications produced by somnoforme on the neuron. The neuron, as is well known, is the anatomical nerve element, or the nerve cell and its branches, as discovered and investigated by Ramon y Cajal, of Madrid, and is composed of three parts; first, a center part that is a real cell, with its protoplasms containing elements with and without peculiar affinity for coloring matter, and its nucleus; second, a peripheral part, made up of protoplasmic branches and the various ramifications (dendrites), with ends which do not anastomose; and third, the more peripheral part, formed by the axis cylinders, which do anastomose.

THE CEREBRUM AND CEREBELLUM.

The investigations were made on the cerebrum and cerebellum of rabbits and cats: first, on non-anæsthetized animals (control subjects); second, on the animal at the end of the anæsthesia, varying from 5 to 15 or 20 minutes; third, on animals at the end of a prolonged anæsthesia (one hour or more), and fourth, on the animals one hour after consciousness had returned.

The staining of tissue was made by the rapid method of Ramon y Cajal, of Madrid, and by the method of vital staining of Ehrlich by the intravascular injection of Gubler's methylene blue. In the right carotid artery of the animal experimented upon injections were made every 5 minutes of from 2 to 10 c. c. (according to the size of the animal) of methylene blue. At the end of a half hour the brain case was opened and the microscope sections were obtained. The researches were always controlled on anæsthetized animals.

The changes brought about in the neuron by somnoforme differ in the various regions of the cerebrum and cerebellum, also in accordance with the duration of the anæsthesia.

FIRST SERIES: SHORT ANESTHESIA.

Cerebral Covering—The pyramidal cells with their branches remained normal; they did not change in size. The chromophile granulations of the protoplasm could be clearly seen; the nuclei were normal.

Cerebellar Covering—The methods of Golgi and Nissl show the sharp modifications undergone by the cells of Purkinje, a slight deformation and irregularity of shape. The protoplasmic prolongations were varicose. It appears that from the beginning of the anæsthesia the mixture has a particular action on the nerve elements of the cerebellar covering.

SECOND SERIES: DEEP AND LONG ANESTHESIA.

In this series of experiments the guinea-pigs died at the end of a quarter of an hour, or after 20 minutes. Cats, as well as rabbits, resist for several hours. When fragments of the nerve centers have been removed from the living animal, or from an animal which has just died, the results obtained by the examination are the same, and the modifications are as clear in the cerebral as in the cerebellar covering.

Cerebrum—The cells diminish in volume. The protoplasm presents excessively clear zones, and the protoplasmic branches remain intact.

Cerebellar Covering—The modifications of the cells of Purkinje are very marked. The protoplasmic branches are deformed and present varicosities and knots.

THIRD SERIES: ONE HOUR AFTER RECOVERY.

There was return of all the elements to their normal state excepting the cells of Purkinje, which are slower to regain their normal form.

Speaking of these experiments, Dr. Roland concludes as follows: "Somnoforme has an elective action on the cells of Purkinje, thus suppressing sensitivity to pain and temperature—its passing through the cerebellum; and when there is saturation or excess of the anæsthesia the pyramidal cells are impressed, determining loss of consciousness." It only remains to state that the results of this observation show the minimum of danger is incurred in the administration of somnoforme, which, during a short operation, causes sleep, without in any way acting on the cerebral covering. This selective power on the part of certain substances for a definite portion of the nervous system should not be surprising to us. We know, for instance, that chloroform, ether, and alcohol have in their action a preference for the cerebral covering; that cocain in moderate doses acts on the peripheral endings of sensory nerves; that strychnin shows a preference for the cellular elements of the anterior columns of the spinal cord; that nicotin paralyzes the nerve cells of the sympathetic ganglia; that curare acts on the motor nerve endings. These experiments show conclusively that somnoforme acts first on the cerebellum and secondarily on the cerebrum.

CLINICAL STUDY.

Somnoforme, as is the case with my other anæsthetic, determines in the patient three well-defined states: first, pre-anæsthetic period, or that of induction; second, anæsthetic period, or that of resolution; third, post-anæsthetic period, or that of elimination or return to consciousness.

In each one of these periods we observe two types of phenomena, subjective and objective.

The subjective phenomena in the first period are emotional: a feeling of anxiety, of suffocation, blurred vision, tinnitus aurium, light tickling in the extremeties, and the strange sensation of having a warm compress on the cerebrum from the occipital to the frontal lobes.

In the second period, or that of the true anæsthesia, the patient experiences no sensation whatever.

The third or post-anæsthetic period commences by the sensation of a far-away buzzing, the reappearance of the sense of hearing, dreams of different types, gay, religious, amorous, professional, etc., generally in relation to the subject of which the patient was thinking immediately before the anæsthesia. At first he fails to recognize the place and the persons that surround him, this state being followed by the return of motion and with a tickling in the extremities.

CLINICAL CLASSING OF CASES.

Clinically, we can group the patients into three classes, as follows:

The first class, embracing 90 per cent. of all cases, is constituted of those patients who are tranquil and unresisting. With a dose of from 3 to 5 cc. (cubic centimeters), in from 15 to 30 seconds, they are anæsthetized, and they remain so for from 50 to 70 seconds, and sometimes for nearly two minutes. When they regain consciousness they are pleased, and express satisfaction and wonder at the slight amount of inconvenience they have experienced.

The second class will be more difficult to anæsthetize. It comprises the restless class of patients who involuntarily resist anæsthesia. When the administration begins they fight to get the mask off the face. They swallow but do not breathe, at first; sometimes they cry out, but finally lapse into unconsciousness. These patients are found in the proportion of 8 or 9 per cent.

The third class of patients is constituted of the alcoholic, epileptic, hysterical, and tobacco users. They are difficult to anæsthetize, and the elimination of the anæsthetic seems to have on them an hysterogenic action, provoking a nervous crisis. Fortunately, patients of this kind will be found only in a proportion of about 1 per cent.

METHOD OF ADMINISTERING SOMNOFORME.

Always employ a mask or inhaler in preference to a handkerchief or waterproof cone, with which it was originally applied. The inhaler will permit, not only the exact measurement of the dose employed, but also rapid induction by reason of the total exclusion of air—a factor of great importance. After seating the patient with the head in line with the body, explain that deep inhalations should be taken, that the liquid has a slightly irritating odor, and that it will produce a quiet and agreeable sleep, particularly if he can induce himself to think of something pleasant. The pneumatic pad of the inhaler having been inflated and tried on the patient's face, pour the somnoforme from the bottle into the chamber of the inhaler in the dose of 5 cc., or the contents of a capsule; close the chamber very rapidly, and instantly apply the face-piece. Generally in about 20 seconds the action of the agent will begin.

and the signs of general anæsthesia will be evident, namely, cessation of the occular movements, drooping of the eyelids, dilatation of the pupils, complete relaxation, occasionally rigidity of the arms and the loss of corneal reflex. The induction is complete in from 30 to 45 seconds, and the anæsthesia lasts from 60 to 90 seconds. The pulse slightly increases in frequency and tension, and the color of the face remains completely normal without trace of the cyanosis that appears when nitrous oxide is employed. When recovery of the patient begins, analgesia persists during some seconds, allowing a little more time to operate with the patient in a semi-conscious state. In four or five minutes the patient completely recovers.

Somnoforme is being rapidly introduced in hospitals throughout the world, and has been used for many years by the following well-known hospitals in England:

The Royal Hospital for Children, Glasgow.
Guy's Hospital, London.
Royal Berkshire Hospital, Reading.
Victoria Hospital for Sick Children, Chelsea.
Central London Throat and Ear Hospital, London.
Bradford Royal Infirmary, Bradford.
St. Bartholomew's Hospital, London.
Victoria Hospital, Folkestone.
Brighton Hove and Preston Hospital. Brighton.
King's College Hospital, London.
Hospital for Sick Children, London.
National Orthopedic Hospital, London.
Middlesex Hospital, London.
Reading Dispensary, Reading.
St. Stephen's Hospital, London.
The London Hospital, London.
Royal Boscome Hospital, Bournemouth.
Victoria Hospital, Barnet.
East London Hospital for Children, London.
Royal Southern Hospital, Liverpool, etc.

Dr. Paden says: I consider somnoforme the most valuable anæsthetic for minor operations, from the rapidity of its induction, its length of available anæsthesia, and the possibility of administering it to all patients and without special preparation, from its pleasant effects, and from its safety, demonstrated, not only by the investigations of its action on the nerve centers, but also a clean record of over 1,500,000 cases. In searching the medical and dental journals of this as well as other countries to secure the mortality of somnoforme, I was unable to find an account of any. Later one journal contained an article by one of our nitrous oxide specialists, entitled, "Nitrous Oxid vs. Somnoforme." He claims that three "precious lives" have been lost through the use of this "dangerous drug." He did not give the mortality of nitrous oxid gas. One authority gives it as one to 25,000, while another gives it, 1 to 50,000. If these 1,500,000 patients had taken nitrous oxid in the place of somnoforme, instead of three there would have been 30 or 60 precious lives lost.

While I have used somnoforme in less than 100 cases, as yet I have not had any but the best results in harmony with the experience mentioned in these notes.

I feel convinced that it is the most desirable of all the anæsthetics for use in dental practice.

The conditions surrounding its administration are practically the same as obtains in the use of any other anæsthetic: perfect quiet and the use of every means to secure the full confidence of the patient.

SUGGESTIONS

BANDS.

Varney E. Barnes, Cleveland.

Prevention of Decay.—All bands attached to the teeth for orthodontia operations *should be cemented* to prevent any possibility of decay from the retention and decomposition of food.

Continuous Bands.—It is just as necessary that a clamp band be continuous in order to hold in the cement as it is for the plain band to be so to even hold together. A flap on the clamp band will make it continuous in all sizes.

Fitting Plain Bands.—Use a straight flat beak plier and fit band material with joint on labial. Then, if desired to have joint on lingual, just reverse band and burnish to tooth.

To Remove a Cemented Band Without Breaking.—Flatten end of an orangewood stick and place it over end of tooth, then place one beak of flat-nose pliers over wood, and the other on the farther edge of the band, and close pliers firmly. Care must be taken to have the grain of the wood transverse to the cutting edge of the tooth.

Plain Cuspid Bands.—Contour band material before fitting, to allow better adaptation of band to curves of cuspid. Fit the band well down over the crown and as close to curves as possible. —*Dentist's Magazine.*

METHOD OF REINFORCING CUSPS.

H. B. Harrell, Gainsville, Texas.

We want a uniform thickness of the grinding surface and do not want the solder to climb the walls. To obtain the one and

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[Erratum—In this department in the December number a typographical error on Page 936, second line from the bottom, made the word *un*vulcanized rubber read, vulcanized rubber.—Ed.].

prevent the other, cut a disk of thin plate and perforate it full of holes with a small punch (this is to prevent air bubbles between the disks), swage this disk between the dies; trim the edges just enough to let this disk drop into the crown; the disk will lay close in the bottom; drop in bits of fluxed solder; flow and all will go right. The disk will act as uniform carrier and at the same time prevent solder from climbing walls. File off overlapping edge of cap and polish solder, and the crown is ready to set in the usual way.

To put these principles into a bridge requires an articulator that will give or permit the natural grind of each case.—*Items of Interest.*

ROOT-CANAL FILLINGS.

I believe that there are not more than five per cent. of dentists that are practicing now who are capable of opening even the simplest canals; they usually try to reach the canals from a cavity in the mesial or distal surface of the tooth, and as I say, seldom open but one canal. Just how men propose to make tortuous roots antiseptic, without opening them, and removing the septic substance they contain, they do not pretend to give any explanation about. Some dentists boast that they can fill hair-like canals to the very apex; I never could.—*Items of Interest.*

TEMPORARY REPAIR FOR LEAKING VULCANIZER.

G. W. Musgrave, Ash Grove, Mo.

Frequently it will happen that the packing of the vulcanizer becomes leaky and that it is impossible to procure a new one at the very moment of need. A temporary repair may be quickly accomplished in the following way: With a sharp knife cut out the leaky packing at right angles clear through to the lid, shape a piece of soft pine wood to fit the space, leaving it a little fuller at the upper margin. Remove the thermometer from the lid, screw it tightly into place, and a few sharp blows with a wooden mallet will drive the lid to place. This will wedge the pine snugly into position. Now remove lid, readjust the thermometer, and the vulcanizer is ready for use.—*Dental Era.*

APPLICATION OF SILVER NITRATE.

G. V. Black, Chicago.

Silver nitrate should be employed with a great deal of care. We should not use it in very deep cavities where there is danger of irritation of the pulp. It is in the beginning of decay of the teeth that it is especially useful. I crush a crystal of silver nitrate on the glass slide we use for cement and put a drop of water on it; stir it for a moment, then touch the end of a toothpick to it and carry it to the cavity with that, having first dried the cavity. Let this application dry, if possible, in the sun, and within fifteen minutes the silver will be precipitated and it will become black; if not so at the first sitting, repeat it from time to time until you get a thoroughly black surface.—*Dental Review.*

A POINT IN THE RETENTION OF LOWER DENTURES.

Dr. Morrow, Maxville, Ont.

It is not my intention to give a lengthy paper on this subject, but to show what I consider to be a valuable point in the retention of lower dentures.

About five years ago a lady called at my office to have me construct for her a lower denture. Upon examination I found that the alveolus from the region of the first bicuspid on either side was almost completely obliterated, and in the region of the anterior teeth there was a flat ridge raising about one-fourth of an inch above the attachment of the buccal and lingual muscles.

I took great pains in constructing the denture after the ordinary method, paying particular attention to the articulation, and making the teeth a little shorter than they really should have been for appearance sake, to reduce the leverage as much as possible, and sent my patient home with instructions to exercise patience and perseverance for a couple of weeks, and, if she were not getting satisfaction, to return. I might say that I really expected her to return. When she did return she complained of the denture sliding from one side of the mouth to the other.

I again examined the mouth, and thought that it might be possible to extend the inner flange of the denture back inside the ramus to near the anterior pillar of the faucæ. I then took an ordinary impression tray and some wax and made the extensions on the tray. I then took the impression, and to my satisfaction found that I had a splendid impression of the process and the inner part of the ramus, and that the patient experienced no more unpleasantness than in the ordinary way. I constructed the denture from this impression, and found that the patient could wear it with much comfort. Consequently, I have been using this method ever since when I met a case with a poor process.

I might say that I have noticed that where the alveolus is badly absorbed, it is much easier to get an impression of the inner part of the ramus. This method not only prevents the denture from moving from side to side, but it also prevents a backward motion; in fact, it places the denture, as it were, within a dovetailed space.

Now, having constructed a denture after this manner, it is still all important to see that the articulation is perfect, because a lower denture has not so much retention, even with this method, as has an upper. Therefore, it is always the weakest and will be the first to move.—*Dominion Dental Journal.*

MATRIX FOR PACKING PORCELAIN.

Garret Newkirk, Pasadena, Cal.

As we all know, the more dense we can pack the body the less the shrinkage. In building up a large molar crown to be finished with one baking, I have been pleased with the following experiment. Having the pins gripped firmly in the proper holder, I cut a strip of sheet steel—of the thinnest sort, such as we use for matrices—and pinch this together around the cap with a small screw vise. Then I oiled the inner surface of the matrix to prevent the porcelain from adhering. I was then able to pack the body of the crown very quickly and firmly, absorbing the moisture that was pressed to the surface from time to time with blotting paper. I built high enough to allow for prominent cusps, then released the vise hold upon the matrix. The spring steel let go, leaving a fine general contour and smooth surface. Then, after having cut away enough of the plaster teeth adjoining to allow about one-sixth for shrinkage, the tooth to be was placed in the articulator and cusps carved to shape. Any required special forms of contour were added with a brush. I am sure that I got less shrinkage and a considerable saving of time by this method.

I may add here that it seems to me that I get a good final surface with soft spunk, dry or slightly moist, upon the nearly dry surface of the body.—*Dental Review.*

SELECTING TEETH FOR DENTURES.

E. J. Perry, Chicago.

I have two classes of individuals for whom I select colors—the brunette and the blonde. The brunette always has a blue-white tooth, and the blonde a yellow-white tooth—extremely so. You can confirm this with your shade guides when these types of individuals appear in your office. In patients who are neither brunettes nor blondes you will find that one type or the other is predominating, and you can grade the shades according to the predominating type.—*Dental Review.*

REVERSE THE SCREW.

Loose the boat and the water stands; fix the boat and the water moves. Dr. J. W. Cowan, Geneseo, N. Y., fixes the boat.

"Next time you want to get a liquid medicament to the end of a root canal do it this way: Flood the canals with the liquid, introduce a Downie broach and revolve it the wrong way; the blades of the broach will operate like the screw propeller on a steamboat. Let me know what you think of the idea."

It's "all right."—*Dental Office and Laboratory.*

PROTECTIVE FOR PORCELAIN DURING SOLDERING.

When circumstances make it necessary to near-by soldering to invest crowns or bridges porcelain-face up, cover the porcelain with thin asbestos paper saturated with the investment mixture, catching the free ends in the body of the investment proper. The paper protects throughout the operation from the direct action of the flame.—*Dental Office and Laboratory.*

TO CROWN OR NOT TO CROWN.

At the recent meeting of the Alumni Association of the Chicago College of Dental Surgery, Dr. J. D. Patterson, of Kansas City, read a very instructive paper on "The Gingival Border," in which he took a decided stand against the abuse of this tissue by banded crowns. He claimed that the irritation of bands had caused the loss of many teeth, and that wherever crowning was necessary it could be accomplished without bands. As to the relative merits of banded or bandless crowns we are not disposed to enter into argument at this time, except to state that it is manifestly evident that many bands do undoubtedly cause more harm in irritation than the good they accomplish in strengthening the root.

But what we wish particularly to emphasize is the oft-repeated contention that crowning is so frequently resorted to in cases where it is wholly unnecessary. In the face of all that has been spoken and written upon the subject the fact still remains that this is one of the crying shames of dentistry. Men still continue to take molars and bicuspids with nothing more seriously wrong than an ordinary proximo-occlusal cavity and grind off the tips of the cusps and slip on a shell gold crown. They also cut off an incisor under the same circumstances, and even go so far in some instances as to advocate a crown where there is only a simple proximal cavity if the form of the natural tooth is not as "pretty" as they think they can make a porcelain crown. This is folly run into injustice, and be it said it is not done by the most expert crown workers. The men who have attained to the highest perfection in crown work have discovered its limitations and learned conservatism.

But the extent of needless crowning by irresponsible practitioners has become really a reflection on the profession, and this is particularly true since inlay work has reached its present stage of efficiency. Inlay work steps in to fill the breach between ordinary filling and the ultimate and last resource of a crown. Let each practitioner, when a patient is in his chair, do as he would wish to be done by under like conditions, and there will be fewer crowns and more fillings and inlays.—Editorial, *Dental Review.*

RUBBER PLUGGER HANDLE.

W. L. Reed, Mexico, Mo.

A piece of rubber tubing the length of a gold plugger handle, and the proper size to snugly fit, will make a restful hand grip and prevent any sensation of writer's cramp. Try this on the nearly straight plugger, where you have to use considerable hand pressure.—*Western Dental Journal.*

TO CLEAN PLATES.

G. G. Brown, Cameron, Mo.

To remove calcareous deposits from rubber plates, drop them in a solution of muriatic acid and water; one part of acid to ten of water. Result is immediate.—*Western Dental Journal.*

TO PREVENT ALLOYING OF CROWNS BY FUSIBLE METAL.

First, never use it. It so happens, however, that many prefer this method of shaping shells, and to get rid of the metal throw shell and its low-melting contents into a basin of boiling water, the basin still over the flame; or worse, they heat the shell in the flame itself. In the first instance the shell is in contact with the bottom of the basin, and for the time being becomes a part of that utensil; as a consequence, it drinks in a small quantity of the fusible-metal die, and notwithstanding its treatment later to a bath in acid, it is alloyed to some degree and for all time. In the second instance, no matter how skillful the workman, some "dross" clings to the inner surface of the crown; its perfect removal is next to impossible. The effect of this maltreatment shows in the melting down of the alloyed part during annealing or reinforcing with solder; or, if it escape this fatality, in the "greening" of the crown when subjected to the action of the secretions, especially of some mouths. The greenish gold crowns, originally 22 karat, have all been colored in this way. If one must use fusible metal forms, and especially of a melting point but little below the temperature of boiling water, contact with the basin may be prevented by covering the bottom with a thickness or two of the blotting paper, or with a layer or two of cloth. In every case the shell should be thrown into acid and kept there until all traces of the baser metals have been removed.—*Dental Office and Laboratory.*

CARE IN SOLDERING.

S. H. Voyles, St. Louis, Mo.

Keep borax off the porcelain surface. Heat the investment from sides and bottom until surfaces to be soldered become hot enough to melt the solder, insuring that the porcelains are hotter than the pins and insuring also a perfect union of material. If the solder fuses at one end and not the other, heat the investment of the other end. — *Dental Brief.*

OBJECTION TO THE USE OF ADRENALIN CHLORID.

A. J. Cotterell, D. D. S., Knoxville, Tenn.

The well-known liability of secondary hemorrhage after the use of adrenalin renders it unsatisfactory as a menstruum for cocain in pressure anæsthesia. I recently used it in removing the pulp from a central incisor and packed the canal with cotton saturated with an anæsthetic. At the next sitting I found the entire crown of a decidedly pinkish hue, showing a thorough infiltration of the tooth substance with hæmaglobin. The vigorous use of pyrozone practically restored the tooth to its natural color, though not entirely so.—*Dental Brief.*

A SOURCE OF DANGER.

D. H. Zeigler, Cleveland, O.

To anæsthetize a tooth for the preparation of a cavity, I fail to see the necessity of combining adrenalin chloride with cocaine —cocaine is considered a general poison of protoplasm; it produces a feeling of constriction and contraction of the vessels; its stringent feeling is easily explained by its affinity for protoplasm. So with this drug we have an agent that produces paralysis of the vessel-walls, i. e., of vasomotor nerves. Black's researches show that vessel-walls may recover their tone and the vaso-construction nerves their functional activity after slight paralysis, but if they are subjected to over-stimulation they become inactive and the vessel-walls yield to the pressure of the blood column, and the result will be death of the pulp. The reaction depends wholly upon the amount of disturbance there has been produced in the blood-vessels; therefore, the less constriction there is produced, the less danger there is of any after effect.—*Dentists' Magazine.*

POLISHING OF METAL FILLINGS.

W. O. Talbot, Gulfport, Miss.

After metal fillings have been ground, cut, or smoothed to the margins with disks or strips, wood points used with pumice and water give a good polish on occlusal and other accessible surfaces.

By the careful use of these instruments fillings may be perfectly finished, made to last longer, look better, and stand as a monument to the skill of the operator.—*Dental Headlight.*

DOES NOT FILL TOOTH THE SAME DAY THE CAVITY IS PREPARED.

J. E. Forsyth, Sydney, N. S. W., Australia.

Personally, I never insert a filling into a child's tooth the same day that I prepare the cavity, my theory being that the preparation of the cavity acts as an irritant more or less. I prefer always to insert a dressing which will restore the tooth to its normal condition. I might state here that I do the same with adults.—*Australian Journal of Dentistry.*

ADNEPHRIN PRONOUNCED BETTER THAN ADRENALIN.

Mr. Philpots said at one time he used adrenalin, but found difficulty with its keeping qualities. He now used adnephrin, which is practically the same as adrenalin. It kept longer than adrenalin, and gave better results, not only in pressure anæsthesia, but also when used in extraction cases. The solution he used was about 8 minims of adnephrin, $\frac{1}{4}$ grain of cocaine hydrochlor, and about 25 minims distilled water. That had a wonderful effect on being injected. He remembered one case which he attempted to treat with adrenalin. The solution had gone off, and he nearly drove the patient mad in consequence. He had used it twenty times previously, with success, but this time he found the drug was almost red. He thereupon tried adnephrin, and found it to work like a charm.—*Australian Journal of Dentistry.*

FOR SENSITIVE CAVITIES.

Henry I. Moore, Frankfort, Germany.

There was a discussion at the August meeting of the American Dental Society of Europe on this subject, in which Dr. Bogue, of New York, told us he used pure carbolic acid first in the cavity and afterwards chloride of zinc. I have been experimenting for some months with peroxide of sodium, and now having used Dr. Bogue's hint about using carbolic acid first, I find I can control very troublesome cases with not too much previous pain. For three or four years I have used very finely powdered peroxide of sodium for relieving sensitive places on the necks of teeth, or spots rendered sensitive by contact with gold bands supporting plates. This led me to use it occasionally for troublesome cavities. My present method is, flood the cavity with pure carbolic acid and wait a minute or so, then put into the cavity a little finely-powdered peroxide of sodium without wiping out the acid. This causes some pain. Add a few more grains and commence to carefully excavate. If the rubber dam is not used care must be taken of the gum.—*Dental Review.*

ABSORBENT PAPER CANAL POINTS AS CHLORO-PERCHA CARRIERS.

Dr. H. W. Gillett, New York, N. Y

I have recently found an additional use for the absorbent paper canal points Dr. Hodson suggested many years ago. They are more effective than broaches in pumping chloro-percha into large and medium-sized canals.—*Dental Cosmos.*

CRACKING OF TEETH IN SOLDERING.

Personally, it is years since I had such an accident happen, and I attribute my immunity from this to the following points:

(1) The use of only the best makes of teeth.
(2) No riveting when backing.
(3) Care in applying borax around the pins.
(4) Care in slowly heating up preparatory to soldering.
(5) Soldering in one operation, so that there are no sudden changes of temperature.
(6) Cooling down naturally.—*B. L., Quarterly Circular.*

OBTUNDING SENSITIVE DENTINE.

For obtunding sensitive dentine, Dr. J. Edw. Line of Rochester uses a solution of cocain on the bur while excavating the cavity. As he excavates the cavity, he runs the bur very slowly, and the solution is forced into the tubuli of the dentin, producing a very satisfactory degree of anæsthesia in advance of the bur. I have successfully tried this method a number of times.—*Dental Cosmos.*

TO PREVENT AFTER-SORENESS FROM REMOVAL OF PULP.

Dr. G. W. Pringle, Niagara Falls.

In regard to after-soreness, Dr. Eschelman of Buffalo suggested something to me about a year ago which has proved very satisfactory in preventing it. It consists, after removing the pulp with pressure anesthesia and waiting for the hemorrhage to subside, in placing in the canal a dressing of cotton saturated with full-strength extract of witch hazel, leaving the dressing in the canal, dismissing the patient, and taking it out at the next sitting, at which time the root-canal is filled. Since I have followed this plan I have had very little trouble from after-soreness.—*Dental Cosmos.*

TO POLISH RUBBER PLATES.

In giving the final polish to rubber plates, a polishing wheel made of about twenty-five thicknesses of unbleached muslin gives a better finish than chamois skin or a soft brush wheel. The edges of the circles of cloth become frayed and do not scratch.—*Australian Journal of Dentistry.*

TO HOLD COTTON ON SMOOTH BROACH.

H. L. Entriken, Enid, Okla.

To hold cotton on a smooth broach, rub a little wax on the broach, warm slightly, and wrap on the desired amount of cotton. —*Western Dental Journal.*

LEAKY SYRINGE.

J. A. Wells, Shawnee, Okla.

If the hypodermic syringe leaks around the packing, cut some washers out of base-plate gutta-percha, put in place and warm slightly over an alcohol lamp, then screw up tight.—*Western Dental Journal.*

A SUGGESTION REGARDING ANNEALING.

Dr. Sprague, Decatur, Mich.

I have a suggestion to offer regarding annealing. In offices in which the alcohol flame is to be used, if gold is kept in ammonia fumes, and thus kept from contamination with other gases (an ammonia salt is formed, and that ammonia salt is the most volatile of all common salts), the gold is more easily annealed. The salts or gases that are on the so-called non-cohesive golds are not as easily driven off.—*Dental Digest.*

THYMOPHEN.

Edward C. Kirk, Philadelphia, Pa.

Equal parts by weight of crystallized carbolic acid and thymol crystals rubbed together in a mortar or combined by gentle heat in a beaker or porcelain dish results in a fluid of oily consistence similar in physical characteristics to the well-known camphophenique. It is without escharotic properties does not coagulate the cuticle when applied topically, and has high germicidal efficiency. The peculiar value of thymol in the treatment of exposed pulps, even when superficially infected, is well known, and has been the subject of scientific study as well as of practical observation for several years. Solutions of thymol have not heretofore been of much utility in dental practice, owing to the lack of a suitable menstruum; hence the virtues of thymol as a root-canal dressing have not been as practically available as they should be The combination here recommended, and which the writer has taken the liberty of designating as thymophen, is an ideal medicament for use as a canal-dressing, taking the place of camphophenique or the essential oils, because of its diffusibility, its sedative, non-irritant, and superior germicidal properties. A large clinical use of the preparation is the writer's warrant for strongly recommending it to the dental profession.—*Dental Cosmos.*

MATRIX FOR POURING A MODEL.

G. E. Truitt, Guadalajara, Mexico.

Take a strip of tape two inches wide and about eleven inches long, dip it in melted wax until saturated, and then allow it to cool. This makes a good matrix rim when pouring plaster into an impression. When slightly warmed the waxed tape conforms to the tray and does not stick to the plaster.—*Dental Cosmos.*

PRACTICAL METHOD OF PARALLELING BRIDGE ABUTMENTS WITHOUT DEVITALIZATION.

H. Phillips, Baltimore.

Where one or both of the abutment teeth incline toward each other, the teeth are prepared for gold crowns in the usual manner. A gold cap with parallel sides is fitted to the rear abutment, which, when in position on the tooth, will incline in the same direction as the tooth. A section of gold plate is now soldered to the cap so as to fill the space between the front edge of the grinding surface of the cap and the gum margin, extending a little in front of a line parallel to the opposite abutment. This section of gold plate extends to the sides of the cap so as to cover about one-half of the buccal and lingual sides. The cap and appendage is placed in position and a gold crown is made to telescope over the cap. The remainder of the bridge is constructed in the usual manner.—*Dental Cosmos.*

REMOVAL OF BROKEN PINS FROM ROOTS.

C. H. Van Deventer, Herington, Kans.

First remove as much of the cement around the pin as possible with a small bur, being careful not to go too deep, as the bur might bind and break, or one might cut through the side of the root. Then take an inverted cone bur (No. 40 to 42 S. S. W.) to the lathe wheel and grind it down until you have a long, sharp three-sided spear-pointed drill. With this follow down the side of the pin, cutting out the cement. Alternate your drilling with gently trying the pin with a small pair of pliers, and you will be surprised at the ease and rapidity with which broken pins can be removed.—*Dental Cosmos.*

DETERMINATION OF TOOTH SHADE.

J. F. F. Waltz, D. D. S., Decatur, Ill

When the saliva is kept from contact with the teeth the tooth-color is soon observed to have become much lighter. This requires the exact determination of the tooth shade to be made at the very beginning of the operation.—*Dental Review.*

CARE IN BAKING OF PORCELAIN.

W. H. Taggart, Chicago, Ill.

The average piece of porcelain is over-baked. I would also consider the filling had lost from one-half to two-thirds of its strength if my first bake was a glaze. All it ought to have is to be brought up to a sandy appearance, making it look as if it had been dipped in hydrofluoric acid. We have found that the temperature to which a piece of porcelain is subject in the furnace is not the only element that changes it, but the length of time it is subjected to the baking temperature is important also. Say that a temperature of one thousand degrees would be necessary to biscuit a certain piece of porcelain, and would do it, say, in five minutes. If another piece of porcelain similarly formed was to be put into the furnace and baked at 800 degrees for a much longer time, you would get the same results, but at a temperature of 200 degrees less. It shows if the first portion is under-baked (biscuited), it will be completed at subsequent bakings, while if glazed at first baking, that portion will be much over-baked before the inlay or crown is finished. If you will remember this, you will get very much stronger porcelain.—*Dental Review.*

METHOD OF INSERTING CRYSTAL GOLD.

W. B. V. Ames, Chicago.

How many dentists in using crystal golds have taken advantage of the ease of adaptability of some of these forms of crystal gold to a cavity by using them in connection with foil or heavy gold, placing a mass of crystal gold relatively in position, and over it a mat of foil or plate of rolled gold to facilitate the carrying of the crystal accurately to place en masse without the chopping up that is apt to occur in my hands with any form of crystal gold? It seems to me there is a saving of time and of gold, and facilitating of the packing, by using alternate layers of crystal gold and foil in some form, combining in this way the virtues of foil and crystal.—*Dental Review.*

A METHOD OF REMOVING BROKEN PIVOTS FROM ROOT-CANALS.

B. B. Detwiler, Herndon, Va.

I have read a number of suggestions regarding the removal of broken pins of Logan crowns from root-canals, but am not aware that the present method has been previously published. I take a rose-head bur, follow the pin, and cut it out instead of the hard tissues round it. Platinum pins are soft, and I find no difficulty in cutting them out. I have never had any difficulty whatever in drilling a pin out, regardless of its length or of the nature of the root-canal.—*Dental Cosmos.*

SOCIETY

ONTARIO DENTAL SOCIETY.

The eighteenth annual meeting of the Ontario Dental Society will be held in the College Building, Toronto, Ontario, February 25, 26, 27, 1907.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin will be held on Monday, January 28, 1907, at the Hotel Pfister, Milwaukee, Wis.

Application must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry for four consecutive years, or an apprentice to a reputable dentist for five years.

For further particulars apply to

J. J. WRIGHT, Sec'y,
1218 Wells Bldg. Milwaukee, Wis.

A CALL FOR AN INTERNATIONAL MASS MEETING OF DENTISTS.

The open letter in the recent Journals has brought out responses of one purpose, that shows a decided interest in the subject of Preventive Dentistry. From every point of the compass comes the unanimous concurrence that it will be wise to issue the call. Therefore, all dentists are invited to meet Monday, January 15, the day previous to the annual meeting of the Odontological Society at the Hotel Knickerbocker, 42d street and Broadway, at 9:30 a. m. Please respond in person or by correspondence. Address any of the names in open letter, or DR. G. ALDEN MILLS,
226 Central Park West.

P. S.—Original articles will be gladly received.

JAMESTOWN DENTAL CONVENTION.

The Jamestown dental convention, to be held under the auspices of the Jamestown Exposition Company, the southern branch of the N. D. A. and the Virginia State Dental Association, will convene at Norfolk, Va., September 10 to 12, 1907. The Jamestown Exposition Company have appointed the following gentlemen a committee on organization to elect officers in advance of the meeting, to appoint all committees, to finance the meeting, to bring it to a successful termination: Drs. Burton Lee Thorpe, of St. Louis, Mo., chairman; H Wood Campbell, Suffolk, Va., secretary; F. W. Stiff, Richmond, Va , treasurer; R. H. Walker, Norfolk, Va.; Thos. P. Hinman, Atlanta, Ga.; J. E. Chace, Ocala, Fla.; Clarence J. Grieves, Baltimore, Md. The committee on organization have appointed Dr. Clarence J. Grieves, of Baltimore, general chairman of the clinic committee and supervisor of clinics. A number of well-known men will assist him on the general committee.

State clinic chairmen have been selected from every state in the Union. The clinics are to be the principal features of the convention. It is expected to bring about the largest and most instructive dental clinics ever held. A surgical clinic will also be held under the supervision of Dr. L. M. Cowardin, of Richmond, Va. The other members of this committee are J. Y. Crawford, Nashville, Tenn., and A. G. Fredricks, New Orleans, La. Dr. F. W. Stiff, of Richmond, Va., is general chairman of the membership committee. Assistant state chairmen have been appointed from every state in the Union. Already membership fees are being sent in, and the promise is for the largest gathering of dentists ever held. Only five essays will be read at the convention, one by Prof. W. D. Miller, another by G. V. Black, the other three by well-known southern dentists. Several exhibits of much interest to the profession will be held under the auspices of the convention, amongst them the dental manufacture exhibit in charge of Dr. John W. Manning, chairman, of Norfolk, Va., a comparative anatomy exhibit, in charge of Dr. W. M. Bebb, chairman, of Los Angeles, Cal. This exhibit will consist of 3,000 comparative anatomy specimens; to these will be added numerous other collections of interest. A dental historical exhibit consisting of ancient instruments, operative and prosthetic work, books and photographs under the chairmanship of Dr. Wm. T. Trueman, of Philadelphia, Pa.; the orthodontia exhibit showing a large collection of models, etc., under the chairmanship of Dr. H. E. Kelsey, of Baltimore, Md.; the U. S. naval dental exhibit, showing 3,000 charts of the mouths of midshipmen, under the chairmanship of Dr. Richard Grady, the U. S naval dental surgeon of Annapolis, Md. The exhibit of the U. S. army dental corps under the chairmanship of Dr. John S. Marshall, of San Francisco, Cal., will show the equipment, method of keeping records, etc., used by the dental corps. A full list of the various officers, which are to be elected in advance by the committee on organization at their next meeting in February, 1907, and of the committees will appear in due time in the various journals. The committee of organization is expected to select officers in advance in order that the officers may be prepared for their duties before the actual convening of the convention. A cordial invitation is extended to all reputable members of the profession to become members of this convention and assist the committee on organization in bringing about one of the best, if not the best, dental meetings ever held. The exposition itself offers an excellent opportunity for the busy practitioner to take a delightful vacation, see the wonderful historical, naval and military exhibit at the exposition, and also participate in this meeting. The membership fee which is $5, should be sent to Dr. F. W. Stiff, treasurer, 600 East Grace street, Richmond, Va. For further information address H. W. Campbell, secretary, Suffolk, Va.

THE G. V. BLACK DENTAL CLUB CLINIC.

The annual midwinter clinic of the G. V. Black Dental Club will be held at the Old Capitol Building in St. Paul, on Tuesday and Wednesday, February 26 and 27, 1907.

The clinic committee has prepared the best program possible for it to arrange. The operative clinic and the list of essayists speaks for itself.

The list of table clinicians has not been completed, but a special effort is being made to have upon it the names of many men who will give as interesting demonstrations as appear upon other portions of the program.

Correspondence with exhibitors leads us to the belief that that which is new will be displayed for those coming from a distance.

Those who are interested in progressive dentistry are most cordially invited to attend our meeting and take part in the discussion of the clinics and the ideas which will be presented by the essayists.

Special railroad rates on all railroads.

As there will be other conventions held in St. Paul at the same time, it is suggested that arrangements be made in advance for rooms.

The Merchants' hotel and the Ryan hotel have made a special rate for those attending the meeting.

The secretary will gladly reserve rooms for all writing him.

PROGRAM.

TUESDAY, FEB. 26TH, 10 A. M.

Progressive Clinic.

Gold-filling in mesio-occlusal surface of upper first molar and upper bicuspids.

1. Dr. A. C. Searl, Owatonna, Minn.

2. Dr. F. S. James, Winona, Minn.
3. Dr. J. W. S. Gallagher, Winona, Minn.

Dr. Wm. Finn, Cedar Rapids, Iowa, will demonstrate the entire method of procedure as followed by these clinicians, using for this purpose a large wooden tooth, clay, etc.

Progressive Clinic.

Gold-filling in mesio-incisal surface of upper cuspid, lateral and central incisors.

4. Dr. G. N. Beemer, Mason City, Iowa.
5. Dr. W. R. Clack, Clear Lake, Iowa.
6. Dr. F. G. Richardson, Mason City, Iowa.

Dr. F. S. Robinson, Chippewa Falls, Wisconsin, demonstrator.

Progressive Clinic.

Gold-filling in mesial or distal surface of upper cuspid, lateral and central incisors.

7. Dr. S. Bond, Anoka, Minn.
8. Dr. A. C. Fawcett, Rochester, Minn.
9. Dr. C. H. Robinson, Wabasha, Minn.

Dr. A. M. Lewis, Austin, Minn., demonstrator.

10. Gold-filling, occlusal surface of an upper or lower molar, demonstrating use of cohesive and non-cohesive gold.

Dr. W. H. K. Moyer, Little Falls, Minn.

11. Porcelain demonstration.

Dr. J. O. W. Wells, Minneapolis, Minn.

12. Amalgam Demonstration.

Dr. G. D. Moyer, Montevideo, Minn.

TUESDAY, FEB. 26TH, 2 P. M.

1. President's Address.

Dr. A. C. Searl.

2. Report of Clinics.
3. Essay—Points of Contact: Their Use and Abuse.

Dr. W. H. K. Moyer.

4. Essay—Specific Gravity of Gold Filling.

Dr. K. E. Carlson.

(Dr. Carlson will report the results of some experiments which he has made, and is still making).

TUESDAY EVENING, 8 P. M.

Illustrated lecture by Dr. G. V. Black, Chicago, Ill.

WEDNESDAY, FEB. 27TH, 9 A. M.

The first three clinics are the same as those which will be made on Tuesday morning.

Progressive Clinic.

1. Dr. C. N. Booth, Cedar Rapids, Iowa.
2. Dr. Wm. Finn, Cedar Rapids, Iowa.
3. Dr. J. V. Conzett, Dubuque, Iowa.

Dr. J. W. S. Gallagher, demonstrator.

Progressive Clinic.

4. Dr. J. J. Booth, Marion, Iowa.
5. Dr. T. F. Cooke, Burlington, Iowa.
6. Dr. W. G. Crandall, Spencer, Iowa.

Dr. F. S. James, demonstrator.

Progressive Clinic.

7. Dr. S. R. Holden, Duluth, Minn.
8. Dr. A. M. Lewis, Austin, Minn.
9. Dr. F. S. Robinson, Chippewa Falls, Wis.

Dr. W. R. Clack, demonstrator.

10. Amalgam Demonstration.
    Dr. J. B. Pherrin, Central City, Iowa.
11. Porcelain Demonstration.
    Dr. F. S. Yeager, St. Paul, Minn.
12. Gold Inlay.
    Dr. C. E. Woodbury, Council Bluffs, Iowa.

WEDNESDAY, 2 P. M.

1. Report of Clinic.
2. Essay. The Relation of the Dentist to the Public and to His Patients.
   Dr. T. F. Cooke, Mediapolis, Iowa.
3. Essay. The Treatment of the Teeth of Children.
   Dr. C. N. Johnson, Chicago, Ill.

It is an impossibility to give a list of the table clinicians. There are a number of men who have signified their intention to be with us and give table demonstrations, which will be of greatest value to all. This portion of the program has not been completed.

The secretary will be pleased to furnish any information necessary.

R. B. WILSON,
Am. Nat. Bank Bldg. St. Paul, Minn.

AFTERMATH

Fire.—The dental office of Dr. Kelly, of Conneaut, O., was completely gutted by fire recently.

Dr. Hammond Dead.—Dr. J. D. Hammond, a well-known dentist of Monongahela, Pa., died November 26, aged 78 years.

Will Engage in Real Estate Business.—Dr. Agnew, of Fostoria, has quit dentistry and will become a real estate dealer in Alberta, Canada.

Change of Location.—Dr. Alfred P. Rogers announces his location at 154 Newbury St., Boston, Mass., for the exclusive practice of orthodontia.

Death of Holyoke Dentist.—Dr. Arthur H. Jasmin, a well-known dentist of Holyoke, Mass., died December 4, after a brief illness. He was 41 years old.

Dentist Passes Away.—Dr. Philip Weil, of Buffalo, died at his home on the East Side, December 6, aged 44 years. He practiced in Buffalo 19 years.

Dentist Retires From Practice.—After more than half a century of activity in his profession Dr. W. S. How, a noted Philadelphia dentist, has recently retired.

Dentist Injured in Auto Accident.—Dr. P. A. Evans, of Ashley, Pa., was quite seriously injured while automobiling. He broke his arm and dislocated his shoulder.

Qualified as Dentists.—As a result of the recent examination held by the dental commission in Hartford, Conn., 11 out of 23 candidates passed a successful examination.

Big Estate for a Dentist.—The will of Dr. James Flowers, a prominent dentist of Pittsburg, who died November 8, was filed for probate. His estate is estimated at over $100,000.

Vulcanizer Explodes.—Dr. F. M. Daniels, of Elwood, Ind., was badly burned December 1, by the explosion of a vulcanizer he was using. It is reported that his eyesight may be impaired.

Death Smites Aged Dentist.—Dr. Francis David Nellis, a veteran dentist of Syracuse, N. Y., died November 19 of heart failure, after an illness of about six weeks. He was the dean of dentistry in Syracuse and practiced there over 40 years.

Marriages.—Dr. A. R. Liber, of Hanover, O., and Miss Olivia Strohm, of New Carlisle, O., were married November 27, 1906. Dr. Wilbur Buzzell, of Port Clinton, O., and Miss Amelia Bingham, of Ann Arbor, Mich., were married November 11, 1906.

Eastern Illinois Dental Association.—Officers elected were: Dr. J. E. Adams, Paris, president; Dr. H. C. Tillotson, Mattoon, vice-president; Dr. T. A. Fulton, Charleston, secretary; Dr. A. E. Boyce Tuscola, treasurer; Dr Fannie Margason, Oakland, librarian.

Few Patronize the Free Dental Clinic.—The free dental clinic opened at the city hospital in Cleveland, O., for the benefit of children of those who are helped by the outdoor relief department has not proved a success. In the future the clinic will be operated through the public schools.

Dentists Think This Is Too Much.—Berlin directors of the zoo at Barmen are at their wits' end to find a dentist to fill an elephant's hollow tooth. The last man who tried it got the scare of his life when the elephant chased him. He now is suing the directors for damages for the shock he sustained.

Death of J. L. Simonds.—Dr. James L. Simonds, of Boston, one of the oldest dentists in the country and the first to make use of ether, died Nov. 8, 1906, aged 82 years. His entire property, valued at about $100,000, is to be used in the founding of an institution for female orphans in the city of Boston.

Boston Dental Society Meets.—Seventy-five members of the Metropolitan District Dental Society, Boston, Mass., met November 12, for their monthly dinner. In the course of the evening Dr. Julius F. Hovestadt, of Boston, contributed a paper on "The Shoeing of Teeth." Horatio C. Merriam, of Salem, acted as toastmaster.

Inventor and Manufacturer.—Dr. Phelps M. Freer, a dentist of Akron, has been made president and is also the heaviest stockholder of the Freer Gauge Co., Akron's newest industry. The company will manufacture the newly patented Freer gasoline gauge for use on gasoline tanks in automobiles.

La Valle (Wis.) Dentist Shot.—Dr. Edmond H. Kreutzmann, a popular young dentist of La Valle, Wis., was fatally shot by the accidental discharge of a gun while hunting rabbits, December 2.

National Capital Dental Society.—The following officers were elected: President, Dr. Starr Parsons, re-elected; vice-president, Dr. F. F. Daly, re-elected; recording secretary, Dr. C. W. Cuthbertson, re-elected; corresponding secretary, Dr. William B. Daly, re-elected; treasurer, Dr. Jesse B. Schafhirt; librarian, Dr. C. H. Howland.

Dentist Narrowly Escapes Serious Injury.—Dr. E. G. Gray, of Richmond, Mo., narrowly escaped serious injury while at work in his office, November 13. He was using a blowpipe attached to gasoline generator. While at his work there was an explosion and the left side of his forehead was badly cut and bruised. He narrowly escaped the loss of an eye, and perhaps more serious injury.

Dental Society Organized.—A meeting was held at the office of Dr. A. C. Brown, in Burton, O., November 24, by the dentists of Geauga county and vicinity, for the purpose of organizing a dental society. Dr. Phelps, of Chagrin Falls, was chosen chairman, and Dr. Brown, of Burton, secretary. The society will include the dentists of Geauga county and Chagrin Falls, Garrettsvillee, and Mantua.

Morgan Dental Society.—The student body of the department of dentistry of Vanderbilt University met November 10, and effected an organization to be known as "The Wm. H. Morgan Dental Society," in memory of the late Wm. H. Morgan, who organized the department in 1878, and was dean until his death. He was recognized as the father of dentistry, not only in Tennessee, but the entire South.

Indicted for Illegal Practice.—A bill of indictment was found at a recent term of Surry county superior court against R. R. Folger, of Mount Airy, N. C., for the illegal practice of dentistry in North Carolina. Folger had been violating the state law for some time.

The North Carolina State Dental Society passed resolutions at its last meeting promising to make it warm for illegal practitioners in this state.

Ohio State Dental Society Officers.—At the recent meeting of the Ohio State Dental Society the following officers were elected for the ensuing year: President, H. C. Brown, Columbus; first vice-president, C. I. Keely, Hamilton; second vice-president, W. H. Whitslar, Cleveland; secretary, F. R. Chapman, Columbus; treasurer, W. A. Price, Cleveland. New members board of directors: W. H. Todd, A O. Ross, H. T. Smith, W. A. Barber.

Dentist Killed in Runaway.—Dr. J. H. White, a prominent dentist of Charleston, Mo., was killed November 20, while on a camping trip. It is believed a runaway accident caused his death.

New Requirements by Pennsylvania Examining Board.—The State Board of Dental Examiners has ordered that all examinations for dental certificates in Pennsylvania be held this year in Harrisburg. All who take examinations must file photographs. The idea of requiring photographs is to prevent frauds, as the board has found people who make it a business to pass state examinations for other applicants. Instances of this came to the attention of the board last year.

Robberies.—The office of Dr. C. B. Hess, of Atlantic, Iowa, was entered, November 18, and gold and other material to the value of $35 was taken. Drs. Burton Oberman and J. H. Dwight, of Des Moines, Ia., were also robbed of $150 worth of gold. Dr. D. E. Smith, of Wilton, Ia., had $15 worth of plates, platinum and solder taken. About $30 worth of gold was taken from the office of Dr. H. M. Dillman, in Gerard, Kans. The offices of four dentists of Washington, D. C., were entered, but only two were robbed. Dr. H. J. Allen lost $75 worth of gold and platinum fillings and Dr. F. D. Dawson was robbed of $20 worth of fillings. The other offices entered were those of H. D. Davidson and W. E. Dieffenderfer. Several dental offices in Leavenworth, Kans., have also been robbed.

Report of Wisconsin Board of Dental Examiners.—The State Board of Dental Examiners has filed with Governor Davidson its annual report, covering the year from October 1, 1905, to October 1 1906. The board held four meetings, one annual, one semi-annual, and two special meetings. At the annual meeting F. A. Tate was elected president and J. J. Wright, of Milwaukee, was elected secretary. There were examined 46 candidates for certificates, of whom 31 were successful. There was a balance on hand of $614.73, at the beginning of the year, $320 was received from license fees, $1,281 from registration fees and also some other items, making total receipts $2,584.98. The total disbursements were $2,225.95, leaving a balance of $329.03.

Be Honest and Ethical.—A man who will insert a single crown or bridge upon an inaccurately prepared abutment, or abutments, and depend almost wholly on the cement to keep the crown or bridge in position, is not honest to himself, and certainly has not treated his patient in a manner he would be willing to be treated were he to undergo a similar operation. Honesty toward patients, conscientiously prepared abutments, accurately and closely fitted caps to abutments, the best up-to-date materials, artistically constructed work, and humane treatment are some of the requisites which should govern every dentist. Gentlemen, let us, therefore, as ethical men, inject into our daily work the highest ideal of manhood and skill and with each succeeding day add to our experience, ever seeking to attain to a high degree of accomplishment in this particular branch. —A. P. Burkhart, Dental Cosmos.

A Case of Death Following the Extraction of a Tooth Under Cocain and Adrenalin Anesthesia.—By Dr. Maragliano, Privat Docent at the Faculty of Medicine of Genoa, Italy. The author reports the case of a man from whom a tooth was extracted owing to a severe attack of alveolo-dental periostitis. In order to render the operation painless the gum was injected with a ½ per cent. solution of cocain containing about gm. 0.0001 (gr. 1-600) of adrenalin. The operation was easily and speedily carried out, but on the following day there was intense fever, and in addition the gingival tissue presented the appearance of having become the seat of an active necrotic process. Symptoms of intense purulent infection soon appeared, and culminated in the death of the patient, which occurred eight days after the intervention.

Although the extraction of a tooth during or shortly after an acute attack of pericemental infection is per se ample cause to account for a fatal termination, Dr. Maragliano opines that the accident might have been averted had the extraction been performed without the therapeutic assistance of the cocain-adrenalin solution To the reviewer such a view of the case seems hardly plausible. The nucleus of infection was present before the injection was performed, which at the utmost could only have intensified the inflammatory process by the depressing action of the agents employed—cocain and adrenalin—upon the cellular elements of the alveolar and adjacent areas. Fatal cases traceable to pericemental infections are not so rare as the author seems to imply, and many just such cases as the one here reported can be found recorded in medical and dental literature. The severity of the symptoms and the fact that death did not occur until a week after the extraction point strongly to septicemia of dental origin as the paramount cause of the fatal termination.—Semaine Medicale.

Fiftieth Anniversary of St. Louis Dental Society.—Dr. F. F. Fletcher has kindly sent us the following report of this enjoyable meeting:

Saturday, November 10th, the St. Louis Dental Society celebrated its fiftieth anniversary. The invited guests arrived in the early morning and were met at the station by friends. They all proceeded to breakfast together, after which they were escorted to the Planters, rooms assigned and the morning given up to calling on friends. At 12:30 the society gave them a luncheon, and until 2 p m. it certainly was "eat, drink and be merry." At 2:30 they boarded a private trolley car and traveled 17 miles out to Florissant, one of the oldest towns in the state, returning to the hotel about 5 p. m after a most enjoyable outing on a perfect autumn day. Between the cigars "and groceries" and Dr. Geo. Cook's stories we felt that the time had been well spent. At 7:30 p. m. we assembled at the banquet hall, and after a pleasant menu the "feast of reason and flow of soul" began and continued unbroken until 1 a. m. Never has the writer listened to such an array of addresses on any subject, bright, sparkling, brilliant, like so many jewels, each seeming to outshine the other, each a perfect gem.

The following program speaks for itself. The guests were entertained in various ways until they left for their respective homes, one and all pronouncing it a grand success from every standpoint:

Dr. M. C. Marshall	Toastmaster
Address of Welcome	Dr. Henry M. Hill, Pres. St. L. Dent. Soc.
Reminiscences	Dr. G. V. Black, Chicago
Some Advances Made in Dentistry in Fifty Years	Dr. C. N. Johnson, Chicago
Uncle Remus	Rev. H. S. Bradley, St. Louis
Friends	Dr. H. B. Tileston, Louisville, Ky.
Reciprocity	Dr. W. A. Thornton, Toronto, Canada
The Dental Society as an Educator	Dr. F. G. Worthley, Kansas City
The Educators This Society Has Produced	Dr. J. H. Kennerly, St. Louis

Recent Patents of Interest to Dentists.—

834676—Dentifrice, Herman C. G. Luyties, St. Louis, Mo.

835861—Toothbrush cup, Israel W. Lyon, Englewood, N. J.

836001—Dental tool, John E. Argue, Red Lake Falls, Minn.

835732—Toothbrush-holder, Wm. E. Lawrence, Minersville, Pa.

835709—Toothbrush, Chauncey D. Miller, Poughkeepsie, N. Y.

834899—Dental handpiece, Wallace W. Freeman, Norfolk, Va.

835432—Rubber-dam or bib-holder, Henry A. Hughes, St. Louis, Mo.

835358—Rubber-dam adjuster, Thomas F. Kennedy, Janesville, Wis.

834515—Artificial denture, Ernest D. R. Garden, Tarrytown, N. Y.

834790—Dental and surgeons' cabinet, Wm. C. Wolford, Confluence, Pa.

833883—Forming dental structures, John A. Lentz, Phoenix, Ariz. Ter.

834594—Obtunding apparatus, Crittenden Van Wyck, San Francisco, Cal.

835431—Projector for pathological work, Henry A. Hughes, St. Louis, Mo.

835365—Combined toothbrush and holder, Robert W. Morgan, Youngstown, O.

38305—Design, top for powder receptacles, John H. Goss, Waterbury, Conn.

835628—Instrument for softening dental trial-plates, Joseph Miller, Bexhill, England.

Copies of above patents may be obtained for ten cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

New Dental College Building for University of Michigan.—Donaldson & Meier, of Detroit, have been given the contract to draw the plans for a new dental building for the university. The plan is for a $75,000 building, which will be located on North University avenue The structure will conform to the architecture of the campus, although just what that style is remains to be determined. A rough inspection would lead to the idea that it is late mongrel with an admixture of early Ann Arbor. The material for the building remains also to be decided, but as nearly everything from wood and painted brick to field stone and paving brick are found it is safe to predict nothing new will be introduced.

Dental Licenses Cancelled.—In the superior court December 10th, with Judge Peaslee presiding, the final steps were taken toward cancelling the certificate granted to certain persons entitling them to practice dentistry in New Hampshire. This matter has been before the courts for more than two years. The action was brought by two members of the state board of registration in dentistry. Chairman Frederic H. Brown and George A. Powers to have cancelled certificates issued by a former secretary of the board, alleging that they were improperly granted. The case of Wilfred Grenier was made a test case. The supreme court found that the contention of the state board of members was correct, and Judge Peaslee made his order in pursuance of that finding.

A Death from Somnoform.—A death of a patient in Rockford, Ill., following the administration of somnoform is reported. The patient was a married woman about 28 years of age, and apparently in perfect health. The agent was administered the second time at an interval of half an hour to remove a fragment of root left in at the first administration. The patient never recovered consciousness after the second administration and died within 15 minutes despite all efforts to save her. The coroner's jury exonerated the dentist from blame.

REGULAR CONTRIBUTIONS

SPLINTS FOR LOOSENED TEETH.

BY GEORGE W. SCHWARTZ, M. D., D. D. S., CHICAGO, ILL.

While at the Indiana state meeting last June, after hearing Dr. Blakeman read a paper on splints for the anterior teeth, I remarked to the editor of THE SUMMARY I considered it the most practical and best one of the meeting, which led to a promise from me to write a short article on the subject for this journal, and is the only excuse I offer for breaking into print here again.

It is a conceded fact that people past middle life lose more teeth from becoming loose than through caries, especially so with the lower incisors. It is not uncommon, though, to find the upper ones requiring splints also, as will be seen by the half-tones presented.

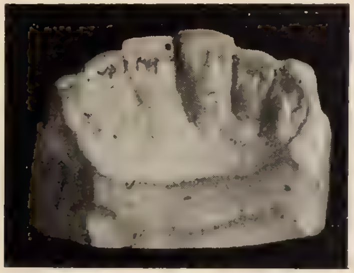


Fig. 1

It is not the purpose of this article to bring to notice splints as something new, but a very important method of supporting loosened teeth that has been, and is, being neglected, as was ably brought out in the discussion of the paper by Dr. Patterson and others. Perhaps the reason splints have not been more generally adopted and used is that they have usually been put on with bands made to entirely encircle the teeth, an objection the wearer would offer owing to the unsightliness of the gold being so much in evidence.

The procedure in the following cases overcomes this objection. The fact that these splints may need resetting occasionally does not detract from their value to both patient and dentist:

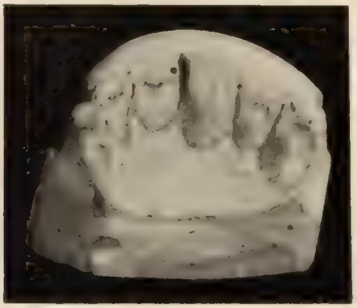


Fig. 2

THE METHOD: Case Fig 1., upper incisors, showing the left central elongated and moved forward from the effects of pyorrhea. Having first been put in place by the use of a regulating appliance, a plaster cast was made for the labial sides of the six anterior teeth, as seen in Figs. 2 and 3. This was for the purpose of retaining the teeth in their relative position, while the halves were being drilled in the teeth to receive the pins of the splint, also to assist in the setting of the splint when completed.

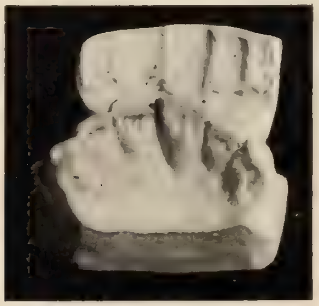


Fig. 3

The splint was made by first taking an impression of the lingual surfaces of the teeth and striking up dies for same; then pure gold was burnished and swaged to fit the lingual surfaces of the teeth. Following this a piece of 20-karat gold plate was struck up and the two soldered together with 18-karat solder, making a good, stiff flint. Holes were then drilled in the splint where desired, the plaster cast was set on the teeth, as shown in Fig. 2, while the splint was held in place on the lingual and the first hole marked on the tooth and then drilled. The pin was then waxed in place in the splint, and both invested and soldered. This was done as many times as the number of pins used, preferring to solder only one pin at a time. It has been my experience that the splint fits more accurately when finished if the pins are soldered to place singly. A word of caution might be offered to use care in drilling the holes—not to come further than just beneath the labial enamel.

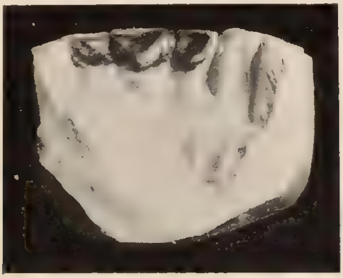
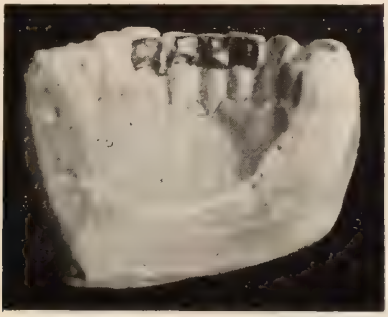


Fig 4



Fig, 5

After the pins are all soldered polish the splint as any other piece of metal work, and it is ready to be cemented to place. With the case dried properly, put the plaster cast on again, as in Fig. 2, as this enables one to press the splint to place firmly after the cement has been run in the holes in the teeth and on the pins and splint. After the cement had become hard in the case cited, the central incisor was ground to correspond in length to the adjacent teeth, as shown in the completed case (Fig. 4). Fig. 5 shows the lower incisors in the same mouth splinted in the same manner, and by the same method. Fig. 3 shows the plaster cast for the labial surface of the teeth.

A NEW METHOD OF CONSTRUCTING THE FRAMEWORK, ON WHICH A REMOVABLE CROWN CAN BE BAKED.*

BY W. L. FICKES, D. D. S., PITTSBURG, PENNSYLVANIA.

The crown about to be described possesses special points of merit, which are common to other crowns, as well as a new feature, viz: a cap and tube on which can be baked a porcelain tooth. If necessary a new crown can be baked on the detachable cap and tube, without disturbing the cap and post on the root.

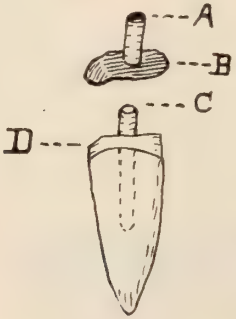


Fig. 1

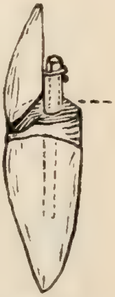


Fig. 2

Fig. 1—*A*, platinum tube 34 g. *B*, platinum cap 34 g. *C*, Iridio-platinum post (tube or solid) 13, 14 or 15 g. If tube post is used, diameter of opening should be large enough to admit 22, 23 or 24 g. wire. *D*, gold or platinum cap.

Fig. 2.—Outer cap and tube, facing in position.

The root is prepared, banded and capped, as for a porcelain-faced gold cap, collar and post-crown, with the post projecting about 3 mm. A piece of platinum plate, 34g., is adjusted to place and adapted to the cap on the root.

A tube made of 34g. platinum is fitted to the post and outer cap. This tube and the outer cap are soldered together with platinum solder, readjusted, and the outer cap reburnished to the cap on the root. The outer cap is trimmed to correspond to the margin of the cap on the root. The outer tube will not be too large for most cases if the post is 13 or 14g., and it can be made smaller for special cases.

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*Clinic given before the Odontological Society of Western Pennsylvania.

An iridio-platinum tube could be used instead of a solid post, and the tooth treated through this tube. The opening through this post tube will give ample room for treatment if it is large enough to admit a 22g. wire, and the tube-post will be strong enough for practical use, if the outside measurement is 13, 14 or 15g., and if it is made of iridio-platinum.

A bite and impression should then be taken and the outer cap and tube removed with the impression. After mounting on the occluding frame, the porcelain crown can be built up and then baked on the outer cap and tube.

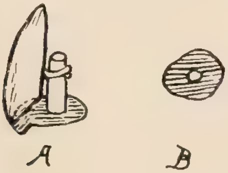

Fig. 3

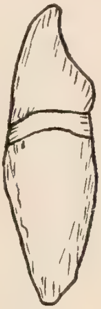

Fig. 4

Fig. 3—*A*, ready for body. *B*, under or root side of outer cap.
Fig. 4—Completed crown.

In applying the body, keep it away from the margin of the cap, to permit of reburnishing just previous to the last bake. Set with gutta-percha cement for ready removal for treatment or rebaking.

The advantages of this form of crown are: First, the root is properly capped and the cap and post cemented to place, independently of the crown, and the latter can be removed and replaced without disturbing the cap and post on the root; second, the band can be burnished to the root, after cementation, more exactly than with the Richmond crown; third, a new crown can be baked on the cap and tube without reconstructing the framework; fourth, if an inner tube is used the tooth can be treated without removing the cap and post from the root. The manufacturers could furnish uniform-sized root posts and outer tubes with cap attached, thus relieving the dentist from that part of the work. The ease of repair and simplicity of construction are special features.

CEMENTED INLAYS OR CONTACT FILLINGS—WHICH?*

BY CLARENCE J. GRIEVES, D. D. S., BALTIMORE, MARYLAND.

Every art in its genesis develops certain basal axioms, which, applied under like conditions, always produce like results, otherwise it is not worthy the name; later, reasons are found, laws are proven, and the art inductively becomes a science.

Antedating by centuries, the sciences of dental bacteriology, pathology and therapeutics, the merely mechanical closing of a carious tooth cavity against recurrence had for its axiom, second only in importance to the removal of decay, the sealing of the cavity edges so as to prevent the ingress of saliva.

That we still apply, or attempt to apply, this rule proves that it has the sanction of our science, that it is more true today than ever, and that just in so much as the individual operator, armed with an exact knowledge of dental pathology, accomplishes the preparation and sealing of cavity edges by adaptation of metals, will he succeed in tooth salvation.

So great, however, has been the percentage of failure in a science the practice of which is second, bar none, in handicraft, that it would appear not amiss in these rather too smug latter days to look again into the simplest physical facts relative to the process of filling a tooth and to our armamentaria, and to question not this ancient axiom, but the possibility of its accomplishment by the mere mechanical application of metals.

The physical forces, acting for or against the adaptation of solids, are cohesion and adhesion, and where fluids are concerned that subtle resultant of these, capillary attraction. Cohesion is the physical force operating at finite, but insensible distances which holds like molecules, and adhesion, unlike molecules, together; so.

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*Read before the Virginia State Dental Society, 1906.

if solids be separate they cannot be made to adhere because it is impossible to get them close enough; the adhesives, such as mortar, glue, cement, etc., and the attraction existing between clean, fresh surfaces of gold, tin and lead when brought into forcible cohesion are notable exceptions to these rules. All solution is due to adhesion. Sugar dissolves in water because the water molecules have a greater affinity for the sugar molecules than the sugar molecules have for each other; water is among the most adhesive of all substances.

Capillary attraction is but an expression of adhesion and cohesion, due to a fluid; water will rise to the height of four inches in an open tube one hundredth of an inch in diameter, if the tube be closed it will rise as far as the contained air will allow; the water adheres to or wets the tube walls; its surface is concave rising higher as it nears these from surface tension. Mercury will remain depressed about a glass tube because of a lack of adhesion, but if a tin tube or a bar of lead be used, it may be siphoned from the containing vessel; capillarity acts inversely, the more narrow the chink the greater the force.

There is no apology offered for these elementary, but important physics: when we realize that the mouth and what it contains are wet, that no capillary opening can exist unless it fill instantly to the extent the enclosed air will allow, and that any joint between tooth wall and filling short of perfect adhesion will leave the cavity almost, if not quite, as wet as it was before the operation.

We know, by a previously quoted law of physics, that it is quite impossible to bring the surfaces of solids having a different molecular arrangement, as gold and tooth wall into such perfect apposition as to make them adhere, and it would be a bold physicist indeed who would claim every hour in the working day to arrange joints at such finite, but insensible distances as to overcome capillary attraction without some adhesive media or cement, particularly in a cavity as inaccessible as the human mouth, and yet that is precisely the claim of the modern dentist.

Turning to the filling materials now in use and their physical characteristics, we find gold, cohesive and noncohesive, often associated with platinum; tin alone or combined with gold; amalgam alloys (usually Ag75-S25, sometimes adding 5% Au, Cu, Zn, or Pt), made soluable by mercury; vegetable gutta-percha stiffened with metallic oxids and cement used alone, under other fillings, or as a retention for gold and porcelain inlays; none of these adhere to the tooth wall save cement.

Cohesive gold, if accurately placed, "stays put" with very active cohesion between its molecules; noncohesive gold, as its name implies, lacks cohesion; this is a most valuable quality; rightly worked it produces the most perfect contact short of adhesion known to dentistry by the passing of its folds under wedging pressure. To quote an authority "it closes the cavity as cork does a champagne bottle." Tin combines the values of gold, but is soft and is better when associated with it than by electrolysis; it hardens, swells and deposits preservative salts; all amalgams, except copper, according to the exhaustive tests of G. V. Black, expand or contract, and what is far worse, "flow"—or give under-stress—indefinitely, allowing leakage and discoloration, due to silver salts; gutta-percha is subject to surface, leathery decomposition, and when wet swells, filling the cavity like cork.

Cements, oxyphosphate and oxychlorid of zinc and derivatives, both of the hydraulic and non-hydraulic type, are, and have been, the only adhesive media used by the dentist; so exacting are the requirements for a perfect cement in the oral cavity that it is yet to be produced. Reference only need be made to the very exhaustive physical tests of Head and the microscopic work of Poundstone, which show in every cement made on test out of the mouth with watereosin complete penetration, either through the cement substance or between such and the ground cover glass to which it was attached, in from three to twenty-four days. Webster and Head have established beyond doubt the penetration by bacteria of cement; the latter proving that the germs filtered through hollow cement shells used in the tests, but were isolated from their habitat and thus rendered innocuous.

The solubility of cements in the mouth is all-important and varies with the product and its manipulation; under the most favorable conditions all are soluble, and to a greater extent in entire fillings than in cemented joints; the doubtful but only guide as to the cemented joint of the future in inlays is the examination of freshly extracted specimens of cemented crowns and inlays; of the past the writer has carefully examined considerably over one hundred, mostly crowns, and found the rule "that cement washes out of a joint to the depth of the width of that joint," a fairly accurate statement, particularly when the joint is exposed to the pumping power of mastication; these joints and the pores of the cement completing them, plug with insoluble mucus when sheltered from the laving churn of mastication, thus preventing solution; and it must be remembered in this connection that the worst joint in an inlay is far better than the best joint in a crown, but that the crown joint is protected from the bite by crown contour or overhung.

Prior to and during the same period the writer has examined for leakage quite as many, if not more, fresh specimens of all types of contact fillings, especially cohesive gold contours, only the very best operations were examined, and there was not one but what showed some penetration by saliva, yet very few were found with perceptible recurrent caries; it has been said that this inter-caval moisture arose from the normal tubuli contents; this is obviously an error, first from the desiccation necessary to properly place such a filling, and second, the tubuli contents disappear in a well-marked zone about a filling, or are not infrequently "filled by a healthy secondary deposit."—(Boedecker).

So it is the writer's firm conviction that there is yet to be made, by any mechanical method such as are in use today, a joint between gold or any other filling material, except cement and tooth, which will not leak so as to be easily perceptible with a low power. It is not necessarily corolary that because of minute leakage decay should follow; such only occurs under the most favorable culture conditions; many mouth bacteria have never been cultivated, so delicate are they; every practitioner has removed many gold fillings, leaking saliva discolored from sulphids without discerning the slightest softening or symptoms of caries, and considering the old methods of operating it is unquestionably true that millions of teeth have been preserved by leaking fillings. It is equally true that no one can say, except approximately, why caries did not recur under such fillings; if any better method present, no conservative operator will accept the element of chance here involved, for it can have no place in any scientific procedure; and it must not be presumed that the foregoing facts can be used as an excuse for slovenly operating; aside from the danger of recurring decay, a leaking filling is a filthy thing unfit for any mouth.

In this connection it may prove interesting to look into the buccal mucus and its role in relation to the protection of fillings. Miller has made plain the fact that the buccal mucus, which is identical with that secreted by the submaxillaries and sublinguals, is a clear, slimy, viscous fluid alkaline, but subject to the state of the health; albuminoid, and hence a nutrient media for bacteria, mixes with the water of the saliva *without being dissolved existing independently therein in ropes*, is equally insoluble in alcohol, ether, chloroform and *dilute acids*, but soluble in dilute alkalies and excess acids.

All surfaces, joints and grooves in the mouth, save those cleaned by mastication, are perpetually covered and filled when normal by a layer of alkaline mucus; while mucus is an albuminoid nutrient of bacteria, peptonization of albuminoids has no part in the beginnings of caries, which are dependent entirely on the carbohydrates as nutria and the lactic acid produced by the organisms they nourish for the disintegration of enamel; the further fact that it is not soluble in water or dilute acids establishes the buccal mucus as nature's own protection for the teeth, as it is for other surfaces in the human body.

So the operator of yore, who, with diligence, elbow grease and wedging produced with non-cohesive gold the very best adaptation possible to any metal before or since with a four-walled cavity, still left some chinks unfilled; these flooded with saliva at once, but soon plugged with insoluble mucus; those caries-producing bacteria which entered while of an aerobic type here verv shortly were isolated from the carbohydrate habitat necessary to lactic acid fermentation, and thus became inactive.

Miller makes this particularly clear in his reference to "the total absence of decay in a closed root-canal which for years had been harboring a putrid pulp and innumerable bacteria;" "for," he says, "in the first place the bacteria in closed canal either perish, or what happens more rarely, become inactive as soon as the nutriment in the pulp is consumed, i. e., in about five days. In the second place, even though they really vegetate for years in a root-canal, we should still have no reason to expect decay because the carbo-hydrates essential to the formation of acids are wanting. The reaction from a putrid pulp is invariably alkaline."

It must be understood that this cavity was cleansed of decay, being virtually a case of pulp capping; the reaction from caries is always acid, and it is not too rudimentary to say here that no compromise is possible in the removal of decay.

It is thus safe to say that all fillings, including cement, which is adhesive, are penetrated at some point by bacteria, and at best can only act as filters, that having the best contact or adhesion and resistance to the stress of the bite, being the best filter to the protection of the caval surfaces, and hence the best filling.

The surface pores of a good cement filling adherent to the tooth wall become saturated with mucus, making the best of filters; the reason such fillings fail first cervically is found in the fact that it is not possible to retain extension of contour as in the inlay where the joint is protected cervically, and owing to morsal stress the filling wastes in contour, forming a retention center; lactic acid fermentation produces the cervical solution.

The apparently paradoxical statement of G. V. Black, who in his careful physical investigations of gold fillings as to recurrence of caries found that it was not the cohesive contour having the greatest density or specific gravity which prevented decay, but frequently a pitted, porous filling successful by something in its manipulation, is quite clear when seen in the light of the grossest study of cavity edges after complete malleted cohesive operations, which too often show enamel wreckage quite microscopic. Caries is microscopic, but for its propagation demands microscopic conditions and foci; it is prevented by that method which with the greatest ease produces microscopic barriers against the introduction of its pabulum. Water can be cleansed of pathogenic bacteria by filtration; numbers count in bacteriology as elsewhere, as witness the statement of Boedecker, who says: "According to the number of micro-organisms invading the tissues, the decay is either rapid or slow; in the latter instance a spontaneous healing by reformation of hard tissues is possible."

The successful but porous pitted filling leaked bacteria, but not in numbers, and by filtering produced isolation from the habitat, giving the dentinal tissues a chance for defense or recovery.

It is significant in this connection that after many years of discussion, still continued, as to the relative merits of the two forms of gold, such successful exponents of the cohesive contour extended to prevent, as the G. V. Black Dental club, acknowledged as the largest aggregation of the best operators in this country, practically build the upper two-thirds of such beautiful contours with noncohesive gold for more perfect contact, finishing by interdigitation with cohesive foil with the mallet to meet morsal stress; this is the greatest possible vindication alike of the "ante-bellum operators, who claimed soft foil as the only tooth-saver, and of those who believe in the inlay principle—a hard filling with an adhesive media—though the noncohesive gold can no more exclude saliva like a fine cement joint than the cohesive finish can meet stress like a cast gold filling.

Granting that it is not possible every day in the working year to produce an adhesion between solid filling materials and equally solid tooth walls, that when this does occur no man can know when he does it nor say how, so fine are the methods producing actual adhesion, nothing but perfection can succeed, the finer the crevice the greater the danger from capillary attraction. Knowing that in no other art is the attempt made to exclude moisture without a cementing media, it would seem the part of good sense to apply next to the tooth surfaces some adhesive which may be worked with ordinary skill to exclude the saliva and to retain such adhesive by a dense filling to meet mastication.

Early in the "seventies" J. Foster Flagg made the suggestion that every filling have interposed next the dentine a layer of cement; if this was true at that time of the defective cements, it is doubly so today; carry this fine line to the margins of the cavity by any method guaranteeing perfect adaptation of the enamel and filling edges while the cement is in a plastic state, and in the opinion of the writer we are doing a little better than ever before in the great problem of tooth conservation.

The method of burnishing foil to a cavity to form a matrix for inlays was first described, according to Wheeler, by Dr. Wm. Rollins, of Boston, in a paper read before the Society of Oral Science in 1880; in that period intervening no method has suffered more from too enthusiastic adherents; had not the principle been correct it would never have survived the first spasm. To say with some that every operation of the future will be an inlay, or that caries never recur about an inlay, or like nonsense, would be to insult the intelligence of this association; what might be considered a fair, conservative statement of the case might be the application of porcelain inlays to all cavities in the line of vision and safe from morsal stress, and of gold inlays to all cavities out of the line of vision and exposed to morsal stress, provided always an accurate matrix could be obtained.

There are a few reasons why an inlay is the nearest approach to the ideal filling other than color in the porcelain and strength in the gold inlay. They are as follows: The inlay is the most difficult and the most honest of all fillings; it is so hard to make right that it never will be the "catch-penny" of the charlatan;" it is honest because every man knows when he has failed and is dishonest if he sets a bad inlay; this cannot be said of other gold operations. It does not stay in the cavity, leak, recurrent caries like other fillings, deceiving the patient and operator, but comes out before any great solution of cement can occur—it is easy to see how there could be recurrent caries around, but hard to see how there could be such under an inlay. The cement is a nonconductor protecting frail walls and the dentine; Boedecker, after conclusive study of the state of the dentinal tubuli lying directly adjacent to fifty fillings of all sorts, found a more healthy reaction and greater solidification under oxyphosphate than any other. The inlay is built on a work bench other than the patient's jaws, preventing possibility of cavity wall fracture from pressure; made in short sittings it saves the patients and operators time and prevents nervous strain, is practically polished when set, which can be done without the rubber dam, and if displaced and captured can be reset, something to be said of no other filling; finally, it requires no more cutting of cavity walls in cavity preparation than extension for prevention.

Lest the writer be adjudged an enthusiast and "daft" on the inlay question, it would be well to mention a grave defect, one which calls for all the thought, clinical experiment and skill of not a few to solve; it is to be found in the fact that the fine cement joint is safe when sheltered from the pump of the bite by contour; then the plugging of the cement pores by mucus is maintained, the finer the joint the safer the mucus-protecting plug and solution of cement stops, but if the joint, even when lapped as in the gold inlay, is open in the least, there is no end to the pumping out or laving of cement due to the force of soft foods in mastication; the writer has examined joints pumped open one-third way down the tooth wall, and it is not long until such give way from lack of support.

This paper is the result of painstaking observations covering several years; it is not an argument for the inlay per se, but rather that every filling should be inlaid or guarded by a fine line of cement for the many reasons stated

With all of the wonderful techinque developed by our profession, we too often find to our sorrow that we have attempted the physically impossible to overcome cohesion; to produce adhesion; to prevent capillarity by mere finger craft calls for powers superhuman. Let us be honest. Let us "'fess up" and say we cannot do it. Then will we have come nearer the Truth, which is more becoming in us as scientific men, the only service we can offer those who call us, and the only tent our profession can afford to accept as her own.

TREATING AND FILLING ABSCESSED TEETH—A RELIABLE LOCAL ANESTHETIC.

BY DR. V. VON UNRUH, NEW YORK, N. Y.

℞	Beechwood Creosote,	15.0 grams.
	Formalin,	15.0 grams.
	Mix and clear with alcohol of 96%.	

Apply this on a cotton thread into roots which are abscessed, and after two or three treatments the abscess will have subsided entirely. Then mix this fluid with a small quantity of precipitated chalk, making a thin creamy paste, and introduce this into the root by means of a dull broach. It is advisable to incorporate in this paste a very small fibre of cotton, to carry it far up into the root. Then apply a blast of the hot-air syringe, by which procedure the formalin gases will penetrate into the canaliculi. Over this root-filling I place a small quantity of cement, after which I proceed to fill the cavity. Whether I have applied arsenic to an exposed pulp or have extirpated it, I fill the roots of such teeth immediately after the removal of the pulp; of course the necessary washing out with warm water precedes such filling of roots. I have in this manner treated abscesses of long standing—one of 8 years—and filled roots as described since the last 4 years, and have yet to see the first case of recurring abscess or trouble after root-filling.

LOCAL ANESTHETIC.

Prescription for a local anesthetic, by hypodermic syringe.:

℞	Cocain mur,	0.5 grams.
	Glycerini,	0.08 grams.
	Aqua dest,	32.0 grams.

Add

Menthol,	0.08 grams.
Alcohol,	q. s. to clear.

M. and filter. Four minims on either side of the tooth to be extracted.

One trial will convince anyone of the absolute reliability of this simple and cheap anesthetic.

A PLEA FOR THE INCIPIENT QUACK.*

BY H. C. SEXTON, D. D. S., SHELBYVILLE, INDIANA.

When we consider the benefit derived from society membership, the pleasure of meeting old friends, and of making new ones, we are moved to wonder why the Indiana State Dental Association has but 300 members, only 60% of whom attend its meetings. when the state boasts twelve or thirteen hundred dentists. Why has our state association only one member where it should have three or four?

We all know that in this world there is no effect without a cause. The laws of nature, of which the laws of psychology are but a part, rule all things. Just so surely as there was a cause for the fall of the apple noted by Sir Isaac Newton, just so surely as there is a cause for the magnetic needle's always pointing toward the magnetic pole, just so surely as there is a cause for the coming of winter and summer regularly year after year and century after century, just so surely as there is a cause for all these things is there a cause for the non-membership in the state society of three-fourths of the dentists of Indiana. Let us try to find that cause.

Someone might say that the reason the other 900 dentists are not members is because they are quacks, but I protest against any such statement. All non-members are not quacks. It would be a slander and an insult to our profession to say so. If such were indeed the case, then, we could rest content, this paper need not have been written; our society would be large enough.

Is it not true that we all know dentists who by their upright lives and honest, conscientious treatment of competitors and patients are eligible, yet who do not join?

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*Read before the Indiana State Dental Association, June, 1906.

Let me tell you at once what I think is the great stumbling block that prevents six good, eligible men from joining to every ineligible one it keeps out—our code of ethics.

THE CODE OF ETHICS.

The code has come down to us from the past, and though many of us have felt its hurtfulness, yet so strong is custom and prejudice that we have accepted it as one of the necessary evils. But as times and manners change, institutions must change with them. Even religion and the church do not stand still; then how can we expect to?

Let me try to explain to you what I conceive to be the matter with the code:—

A code is a system of laws.

A code of ethics is a system of laws enacted for the purpose of forcing you to behave like a gentleman. Note the words—to behave *like* a gentleman, not *to be* a gentleman; a gentleman cannot be made by law.

Suppose the proprietor of Delmonico's in New York were to station an attendant at the entrance to accost all who approached the door in the following manner:—

"This establishment is run on a high plane; we have our dignity to maintain, and we can take no chances. If you will promise not to eat with your knife, not to pick your teeth at the table, nor put your feet on it; if you will promise not to spit on the floor and not to steal the food from the plates of other diners, then you may enter. But please remember that any violation of these rules will bring upon you ignominious expulsion."

But that would be silly, I hear someone say; it would keep desirable people away.

And I agree. It would be silly and it would keep desirable people away. Yet that is exactly what we have the code of ethics do for us year after year.

"Are you a gentleman?" asks the board of censors. "Do you practice any unworthy tricks or subterfuges? Do you promise to treat your brother practitioners with consideration, not to malign them, not to steal patients from them by telling lies or by concealing the truth?"

And how does the young practitioner feel when he is more or less openly asked these questions? He turns red in the face and feels that he has been insulted—he is not used to being taken for a disreputable character.

What is the good of this code of ethics, anyway? Whom does it help?

Does the code of ethics help the members? Or, to come to the bottom of the matter at once, does the code of ethics help you, does it make you respectable, does it keep you from lapsing into a quack? "No," you indignantly reply, "the code does not affect my behaviour one jot." Of course it doesn't. To confess that you were made respectable by a set of laws you were afraid to violate would be to acknowledge an abjectness most shameful. I challnge anyone to produce a member of this association who will make such a confession. If there be such a man, shame would keep him silent.

We have laws against murder and criminal assault, but do the laws keep the respectable citizen from committing these crimes? Would you, if those laws were repealed, immediately become a murderer and a ravisher? No; your conscience, your own self-respect, is what keeps you from lapsing into a criminal.

The code of ethics does not help members. Then does it help non-members? Of course it doesn't; it is not applicable to them; they are not under its authority. The Russian law against bigamy cannot put down bigamy in Utah.

Since then, as we have seen, our code helps neither members or non-members; then tell me if you can, who, under God's heaven, it does help? It helps nobody.

The signs of the times are against a written code. The heart must be the fountain whence flow all ethics. The code cannot put righteousness in the heart; without its being in the heart the surface veneer is but a mockery.

PRINCIPLES OF MEDICAL ETHICS.

The American Medical Association, which met at New Orleans, May 7, 1903, adopted the caption, "Principles of Medical Ethics," instead of "Code of Medical Ethics." In other words, they placed the matter under the head of advice instead of law. How much better that is!

A few years ago the regular physicians were not allowed to meet any other school in consultation—to meet a homeopath at a sickbed meant for them expulsion and professional disgrace. This law was repealed in spite of the predictions of many medical fossils that the action meant ruin to the whole profession. Now a regular meets the homeopath whenever necessary. And with what result? They think more of each other, and the world at large thinks more of them both than it ever did before. These things are but straws to show the way the wind is blowing. Liberality is the watchword of the day.

PRACTICAL APPLICATION OF THE CODE.

For several years I have had the honor of serving as a trustee of the Indiana State Association, and in that position I have had some advantages for the study of the practical application of the code. To act a censor is a disagreeable duty—it always makes me have a sneaking intuition that I am engaged in an unworthy business.

I wish I could tell in detail of the cases brought before us, but of course that cannot be done—such affairs are of too private a nature to be publicly discussed.

It suffices to say, however, that some of the actions that raise in you most contempt are the very ones that escape a written code, while in most cases the man who is either expelled or suffered to remain on probation is some poor devil who, from ignorance and his crude methods of quackery, has hurt himself more than anyone else. In other words, some of the most ungentlemanly acts pass unchallenged, while the violator of the letter of the law, the one who has not been sufficiently skillful in covering up his tracks, suffers ignominious dismissal.

Enlightened jurists say that all sentences for violation of law should be given with the idea of reformation in mind. When an advertiser is expelled from the society, what is the result? He becomes more of a disgrace to the profession than ever, for these very evident reasons: first, his resentment is aroused, and secondly, he is shut off from all good influences. Instead of working reformation it only produces aggravation.

THE ETHICAL PRUDE.

Above all, I have a contempt that is colossal for the little-minded man, the ethical prude, who is ever ready to report an infraction of the written law to a board of censors. In my opinion, he is of the same stripe as the Judas Iscariots and

Peeping Toms of history and legend. A great American once said: "The good which a man sees compared to the evil which he sees is as his own good compared to his own evil." That is a wonderful presentment of truth. If we could but remember it and apply it every day and every hour of our lives, it would make us a different race of men; no reports of violations of the code of ethics would then be made to a state association.

Instead of being reported to a board of censors most quacks, incipient ones especially, should have friendly help, sympathy, and advice tendered them. Quackish advertising in a young man is in nine cases out of ten a sign of distress. He resorts to it only in desperation. It is a shame to our profession that we have no better treatment for him than to brand him as being guilty of ungentlemanly conduct.

Quackery does not pay. It is to a practice what whisky is to a tired man; it is inevitably followed by a reaction, a depression. Yet whisky is indicated in certain conditions of the system, and so a young man often gets to the sink or swim point, where he considers he must advertise or starve.

Now, I am going to be perfectly frank with myself and perfectly frank with you. If I were starting into practice, and after a few months struggling found my money was gone and debt and failure staring me in the face, then I would advertise to beat the band, and I would cut prices; in fact, I would do anything not actually dishonest to tide myself over to eventual success. And, moreover, I know, I *positively know*, that such course would be the praiseworthy, and the manly thing to do. I have a mighty poor opinion of the young fellow who will acknowledge himself a failure before he will resort to such means of getting upon his own feet.

Now, that is exactly the position many a young man finds himself in, and when in that position, do his professional brothers accord him any help or sympathy? No. The ethical dentist on the other corner, who has a good account at the banker's, turns up his nose and stigmatizes as a quack the young fellow whose only offense is that, in the midst of adversity, he is struggling bravely for independence.

If the young man is a member of the society, they expell him, and if he ever in his life becomes an ethical dentist afterward, it will be in spite of society members and not through any aid from them. The society says: "We will allow no such man to attend our sessions," which is equivalent to saying, "We will shut the culprit out from all helpful influence and association."

Suppose the churches had placards at their doors forbidding entry to all sinners; do you think they would have many accessions?

THE SELF-RIGHTEOUS.

I tell you, gentlemen, there are too many society members who sit upon a pedestal of self-righteousness and look down with contempt upon all advertisers. This feeling is culpably wrong. These men are willy-nilly members of our own profession, and instead of scorning them we should be exerting ourselves to their uplifting. Reformation was never yet brought about by intolerance; it can only be accomplished by a crusade of liberality, education, and fraternal commingling.

Do you remember the story of Jean Val Jean and the bishop's candlesticks? If not, I wish you would get down your "Les Miserables" at the first opportunity and read it. It is one of the truest, one of the most beautiful of sermons, and yet it is no sermon at all, but only an excellent story. Jean Val Jean's heart was touched, and then reformation came. How was it done? Not by shutting the door in his face, not by thundering anathemas at him. No. The bishop, when every other door in the place was closed against the ex-galley slave, invited him in to sup and spend the night, treated him as a friend. His hospitality was ill repaid. Jean Val Jean arose in the night, stole the silver candlesticks and fled. Did the bishop cherish resentment? Not he—he was trying to reach the man's heart. The next morning he even went to the length of telling a lie to save that low-down, brutish criminal, Jean Val Jean, from a return to the galleys. He, a bishop in the mother church, telling a lie to save a miserable wretch like that! Did Jean Val Jean want to reform? No; but he was compelled to—compelled by kindness.

You may think that there is a great waste of ammunition in such a comparison; you may think that I am calling up a regiment of artillery to brush the flies off the barn door, but the weaknesses of humanity and the methods of obtaining influence to counteract those weaknesses are immutable. No man was ever yet reformed by having the door shut in his face, thereby excluding him from the only society where reformative influences could be brought to bear upon him.

One of the greatest lessons of all history is this: If you would have an error live, persecute it; if you would have it die and be forgotten, treat it kindly. Why have the Jews, though scattered all over the face of the earth, lived through all the centuries as a distinct race? Simply because they have been treated with intolerance and injustice. If it had not been for the persecutions of Christians the Jewish race and the Jewish religion would have been extinct long ago.

ABOLISH THE CODE.

The code of ethics has been the measles and mumps of the childhood of dentistry. We are grown now, and along with childish diseases the code should be relegated to the past. It should be repealed. The bars of entrance to our society should be thrown down to all comers.

What! would you allow a virulent quack to become a member? Most certainly I would, and welcome him. In what better or more elevating association could a quack be than with the ethical members of his own profession.

But, someone objects again, he would contaminate and degrade our whole society. Bosh! Not a bit of it. Every society protects itself by the very *esprit de corps* that is the foundation of its existence, and not by written laws. The company is perfectly safe; the quack is not one of them, though his body is in the room. I have enough confidence in *gentlemanliness* to know that it can meet *quackery* on an even basis, and without any *artificial protection* of codes, and vanquish it every time. Truth against deceit is sure to win. A virulent quack in our association would be a fish out of his element—in time he would either reform or withdraw. No other result could be possible.

Illinois has increased her state membership wonderfully, but I believe in a very mechanical way. Making a dentist a member of the state society solely because he is a member of a local society gives him less of the spirit of the organization and less interest in it than if he joined direct, and it is less apt to make him attend its sessions.

But if we wanted to adopt the same measure in Indiana we could not on account of most of our local societies, and by far the most successful of them being run without any code of ethics. And herein lies a lesson for us.

Do the quacks capture these unethical societies? No. I have attended the Eastern Indiana several times. I have seen at its sessions many unethical dentists, even some you would stigmatize as the veriest of quacks; yet they always act in a gentlemanly manner; they make no attempt to support their methods of practice by argument; indeed, it takes no keen observer to see that in presence of more enlightened ideas they are ashamed of themselves.

And when they go home they are better men professionally and better men morally. Can you for one moment doubt it?

SOCIETIES SHOULD HAVE A BROAD FOUNDATION.

It is an axiom of mathematics that the height of a pinnacle can only be limited by the breadth of its base. To make our dental societies big, strong, healthful, towering, they must have a correspondingly broad foundation, and this necessitates our gathering in the young dentists as soon as they begin practice. The repeal of the code would help us do this.

Many a young man would join his state society when he starts into practice did he not feel that necessity might soon compel him to violate its rules. This young man has common-sense; he will advertise and be glad to get the second rate, dirty-mouthed practice advertising brings, before he will announce himself a failure, before he will go back home to live on the old folks again. He prefers to be ethical, and will be ethical when he feels that he has enough to live on, but he is not going to tie his hands in the start by joining an association against whose rules he may be compelled to act in the very first months of his practice, thereby incurring expulsion and shame.

SOCIETY AFFILIATIONS.

Now here is a point that I wish to emphasize: when a young man starts into professional life without society affiliations, a harm has been done that in all likelihood will never be repaired. How much easier it is to take the right road in the beginning than it is to take the wrong road, and afterwards have to retrace our steps.

ARTICLE II. OF THE CODE.

Do you remember what Article II. of Section IV. of the code requires of the young man? I shall repeat it:

"When consulted by the patient of another practitioner, the dentist should guard against inquiries or hints disparaging to the family dentist, or calculated to weaken the patient's confidence in him; and if the interests of the patient will not be endangered thereby, the case should be temporarily treated and referred back to the family dentist."

Now, the first part of the paragraph is all right. Leaving all ethical considerations aside, one dentist is a fool to speak against another simply because such conduct, like the Australian boomerang, reacts against himself. But here is the rub: "When consulted by the patient of another practitioner * * * if the interests of the patient will not be endangered thereby, the case should be temporarily treated and referred back to the family dentist."

Let me ask you, gentlemen, if the young man just starting out in practice were to observe that injunction to the letter, where would he ever get patients. Four out of five that consult him come from the clientele of other dentists. But he must do no permanent work for them; he must only treat them temporarily and then send them back to their old dentist. Let me ask you to tell me honestly what you think of a young dentist without practice who does not do every possible bit of work he can get to do for everyone who comes into his office? He is foolish, isn't he? Of course. I don't care what your code of ethics says.

"But," some code supporters have said, "that is only meant to apply to cases where the original dentist is sick or off on a vacation." Then, if that is what it means, why doesn't it say so? It says something else in as good plain English as can be written. Of course if the other dentist or the patient herself ask the young practitioner to treat the case temporarily, that is a different matter; he should do it very willingly and very courteously.

By abolishing a code of ethics a society would not thereby abrogate its right to expel any member for ungentlemanly conduct. If a really objectionable man become a member he could be gotten rid of. The society would not be saddled with him for life. We could still protect ourselves and do it fully as well as we now do.

But the abolition of this useless, disagreeable code is not all we should do to attract the young graduate to us. We must abolish the initiation fee. Just at the one time in his life, when money is scarcest and he can least afford to pay the necessary railroad fare and hotel bill, we ask him to pay an additional five dollars as an initiation fee. And what is this extra five for? It is not for our annual expenses; we have an assessment for that. The young graduate regards it, and very justly regards it, as a hold-up job, in which the opposing forces are as 100 to 1, and as an American citizen he resents being held up.

ALLOW RECENT GRADUATES TO JOIN SOCIETY FREE.

We should allow a dentist to become a member of the state society at any time within two years after his graduation from college without the payment of any initiation fee. This would remove the obstacle we have placed at our door against the young man; it would make it an inducement for him to join early; it would make it an inducement for him to start on the right road instead of on the wrong road.

DIPLOMA A PASSPORT.

And another measure I should like to see in force: Let us make the graduates of all Indiana colleges members of the state association, by virtue of the diplomas they possess, just as they are, by virtue of their diplomas, members of their college alumni.

In the feeble efforts we have been making to increase the membership in our society we have been vainly trying to make our young dentists shut their eyes to the obstacles at the door instead of, in a manly and brotherly way, removing those obstacles; we have been vainly struggling to make water run up hill, vainly struggling to twist a rope out of sand. We have given the young man a cordial invitation to come over into the friendly garden of professional peace and right conduct. But the young man is not blind. He sees the stone wall we have built around our garden; he sees the broken glass on top of the wall; he sees the barred gate that opens only for a five-dollar fee—a big sum to a man who is just starting in life; and he sees the code favorable to older, well-established dentists. Can you think the prospect looks inviting to him? I tell you, it is a wonder we ever have a young graduate join us.

MANUFACTURERS' EXHIBITS.

Here is another phase of the matter: In the last few years we have seen something new in the way of dental gatherings; I refer to the exhibitions of the manufacturers. In Indianapolis, in February, an exhibit, with only a few days' notice ahead, had an attendance of 300 dentists—more than come to our state meetings after all our advertising and puffing. At the Manufacturers' Exhibition in Chicago, in March, the attendance was over 5,000.

These things hurt the society, and they directly advance the spirit of commercialism in the ranks of the dentists. The young man attends; he sees nothing but the commercial side; he is asked to pay no initiation fee, no assessment; he is not asked to obligate himself to obey the provisions of a code which he thinks discriminates against him; and the worst feature of all, he has no influence brought to bear upon him tending to make him value himself as a member of an enlightened profession. When that young man goes home from a manufacturers' exhibition, he has a prejudice against ethical societies; he is apt to think them made up chiefly of hot air and snobbery.

Who is to blame for it? The societies. Here is a statement we cannot get away from: If the societies had been representative of the profession, if they had done their duty and induced the majority of the dentists to attend their meetings, the manufacurers would not now be going to the expense of giving these exhibitions apart from the society meetings. When they, the manufacturers, found they could only reach one dentist in four or five through the societies, they started exhibitions of their own, and their success has been phenomenal. To offset this, there is but one thing to do: the society must open its doors to the ranks of the profession.

And now to sum up the measures we should take to increase the influence and the membership of our association:

First—Discard the misfit code of ethics. Let the one requirement for admission be that a man be a dentist.

Second—Charge no college graduate an initiation fee if he applies within two years after his graduation, and further, make all graduates of *Indiana* members of the state association without any further action on their part.

Third—Discard all sneering against advertisers and quacks, young ones especially. Treat them as you would treat a brother who is *weak* and *sick*, but *not criminal*. For, as dear old Bobby Burns has said—

> "For a' that, and for a' that,
> A man's a man
> For a' that."

DISCUSSION.

Dr. Horace M. Thomson, Indianapolis, Indiana: The paper you have just heard reminds me of a little incident that happened in Washington recently. Senator Pettus was piloting one of his constituents, an elderly man, about the city. After he had shown him the Smithsonian Institute, where he saw nearly everything God ever made, and through the Patent Office, where he saw nearly everything man ever made, he took him to see the Washington monument. The old man gazed earnestly and speechlessly for a few minutes, when Senator Pettus said to him: "Well, what do you think of it?" "It's the gosh durndest, tallest one-story building I ever seen!" was the appreciative reply. Dr. Sexton has constructed the tallest one-story argument I remember to have seen, but more remarkable still, though it is so tall, it has no foundation.

Dr. Sexton has with infinite pains made a very formidable-looking man of straw, and then, with all the dare-devil bravery of a Don Quixote attacking the windmill—though fortunately with less disastrous results, to himself—he tears it limb from limb. I would suggest the title of this paper be changed to "A Plea for an Expurgated Edition of the Ten Commandments."

Dr. Sexton talks about code, and tries to make you believe that code means law. It means nothing of the kind. The Standard Dictionary gives these three meanings of the word "code." First, code, law; a unified and co-ordinated body of law; especially re-enactment in improved and systematic form of previously existing law."

He would have you believe that our code of ethics is of a similar nature; it is not.

The second definition of code is: "A system of signals or characters used to represent letters or words." The third definition of the word is: "A system of rules and regulations, generally approved and formally applied for conduct in particular cases, as social code." It seems to me a man must be a genius at stupidity who does not see that this is the definition that covers the meaning and intent of our code of ethics.

This code we have is a very ancient affair. The first code was written, I believe, by Hippocrates, and the code, practically as we have it, was written in the latter part of the eighteenth century by an English physician, for the guidance of his son who was about to take up the practice of medicine in a distant part of the British empire. Ethics, of course, is simply the science of human duty, and dental ethics the science of human duty as it applies to the dentist in his peculiar position in life; his duty to himself, his patients, his professional brethren, and the community at large.

How about the young man who wishes to join our association, and the embarrassment of approaching him? The only two questions necessary to ask are: First, "Do you wish to join the association?" and second, "Have you five dollars?" What an applicant has done before has nothing to do with the case. It is what he does afterward that we take account of. Judging from the tone of Dr. Sexton's paper, you might imagine the chief end and aim of the state meeting was to sit in judgment and expel some erring (usually young) member. During the 15 years I have known the State Association, only three men have been expelled. Of these three, two had been in practice for years, and both of them came of their own accord, apologized, admitted their error, and asked to be taken back into membership again, thus admitting the action of the Association to be just.

Dr. Sexton asks, what is the good of the code of ethics? He might as well ask, what is the good of the Ten Commandments? Both are ideals. He says no man will admit that the code has anything to do with his conduct. I will admit it has with mine, and I believe there is not a man present whose life has not been influenced, unconsciously it may be, but profoundly influenced by the code. The code of ethics is a guiding star; it is the rainbow of promise to every young man who comes into the profession. It seems to me it would be the height of folly to do away with it. Of all the causes that keep men out of the Association, it is the least. I believe there are not a half-dozen desirable men in the state of Indiana who are prevented from joining because of it.

As far as the advertising man is concerned, I have not a particle of respect for him; he is a parasite; his greatest stock in trade is your respectability and mine, for if the majority of the members of the profession did not maintain the dignity of dentistry, his disreputable methods would be of no avail, for we would be all on the same level. By an advertising dentist I do not mean the young man just out of college. He is only feeling his way, and like the child, "By falling learns to walk erect." If he continues to advertise, it is either due to an arrest of mental development or because he is an innate quack; either condition is hopeless. What I condemn is the advertising done by the gentlemen (?) who masquerade under an assumed name, hiding their identity under some such title as "The ————————, Painless Dentists;" "The Globe Dental Parlor," and the like.

There is not a dentist or firm of dentists in the United States today, carrying display advertisements in the daily newspapers, that is not a lie on the face of it, and so far as I know them in Indianapolis, there is not one of them that is not rankly dishonest in their treatment of patients that are lured into their dens. Dr. Sexton describes beautifully the character of some of these advertising men. No doubt what he says is true. The bee is not a handsome insect; its disposition is irritable, and about its most shining traits are its frugality, intelligence and industry. But behold the bed-bug! How beautiful. Its back a lovely, mottled red, its body plump, its habit strictly domestic. Then why is it in such disrepute? Simply because of the dirty, low-down, mean way it has of making a living. And that sums up my objection to the advertising physician or dentist—the dirty, low-down way they have of making a living.

This paper is remarkable also for its mathematics. I think Dr. Sexton is in error in his statement of the number of dentists who attended the manufacturers' exhibit, both in Indianapolis and Chicago. He says that 300 men were present in Indianapolis. One dental depot dealer placed the number, exclusive of Indianapolis, at 25, but said there might have been 40. Another said 40, or 50 at the outside. Three-fourths of these were active members of the State Association. I think the Doctor says there were 5,000 at the Chicago exhibit. I wrote to one dealer in Chicago, and he said there were about 600, and that very few of the resident dentists attended, most being students or practitioners from a distance attending school in Chicago. Here is a discrepancy of 4,400—about 400 per cent.

Not satisfied, I wrote another dealer. He replied there were 968 registered outside of Chicago, and that in all, 1,413 registered. This comes very near the Doctor's estimate—only 3,500 short.

These exhibits were not given because of the inability of manufacturers to reach the profession through state meetings, but because of economy. The exhibits could be taken from one city to another at a fraction of the cost of making exhibits at state meetings, because of the different times of meetings of state societies.

I am informed, on good authority, that because of negative results, manufacturers' exhibits will probably be discontinued in the near future.

If I had time I would like to talk about the manufacturers' exhibits at state meetings. We would be just as well off without them. They pay a minute fee, and seem to think they are under no obligation to the State Association.

Now, what is the matter with our State Association? The benefit of membership is to the individual, not to the society. No matter how valuable a man may be, he derives more benefit from his membership than the Association does from him. Dr. Sexton would have you believe that we are a close corporation, illiberal in our treatment of non-members. Nothing could be farther from the truth. The services of all churches are open to the public, but there is not a church in the world that I know of that does not require some sort of a profession before a man is taken into the fold. If they don't do anything else, they take him out and duck him. For 50 years our meetings have been conducted in the same way; the doors have been wide open; anybody could come in and listen to the papers and hear the discussions, and only within the past few years have the clinics been closed to other than members and their guests, and this was done in justice to members, as only a limited number of men can see a clinic.

Dr. Sexton's suggestion of making all graduates members of the Association within two years after their graduation, without payment of fee, is a good one and should be acted upon. However, the money question is not at the bottom of our trouble. In Indianapolis we have 100 men who are eligible to membership, and only about 25 are members. Why? Is it because of money? No; for we usually meet in Indianapolis, and the money cuts no figure. Then, why is it we have no more Indianapolis members? It is simply because three-fourths of the men in Indianapolis, like three-fourths of the men every place else, do not feel that the benefits derived from membership are worth the trouble. If some heaven-born genius could concoct a convincing, unanswerable argument, proving the value of membership, the figures would be reversed, and three-fourths of the dentists of the state would be members, instead of one-fourth, as now.

Taken as a financial proposition, we know that the cash value of attendance on any meeting, no matter how small, is all out of proportion to the money invested. We also know that this is the smallest value we receive from our meetings; but knowing a thing and making somebody else see the same thing is another matter. I would suggest:

First—Adopt Dr. Sexton's suggestion of making recent graduates members without payment of membership fee.

Second—Make an extra effort to welcome the new and prospective members.

Third—Change the date of meeting of the State Association to October or April, thus giving the student in college three years in which to become acquainted with society work. As it is now, they never have a chance to attend a meeting without making a special effort.

Dr. Henshaw: I don't know of anything that Thomson left out. Thomson came all the way up to Middletown the other day purposely to ask my help to shoot this paper of Sexton's full of holes. Now, if there is any place I can put a hole in it since Thomson finished, I don't know where it is. Thomson wasn't even gentlemanly enough to recognize the fact that this paper of Dr. Sexton's, while it may be entirely wrong in theory, is beautifully written and is a masterpiece of literature. That is the sort of paper Dr. Sexton always writes, and I wish to compliment him on it. It occurs to me that in the matter of the original promulgation of the code of ethics, the man or men—Thomson knows the man, I never heard of him, and I don't think anyone else ever did—were idealists. Dr. Sexton, according to his paper, is an idealist, but they are exactly divergent. Dr. Sexton wishes to take down the bars and let everyone in and try to reform the whole shooting match, while those who promulgated the code erected certain barriers. To my mind, there is a vast amount of virtue in having something that is worth so much to those who have it that people on the outside are willing to cut out certain characteristics in order to come within the fold. I should be very sorry to see the code of ethics abolished. I don't believe the code of ethics ever made any man a gentleman, because a gentleman, like a quack, is born, not made. It takes more than one generation to make a gentleman. For a society like ours to have a code which merely outlines the duties of man to man, and which puts without the pale those who will not, under any circumstances conform to it, gives an incentive to men who have within them the necessary elements of a gentleman, but whose training and environment have driven them to a certain, to us, repulsive form of business, to act as gentlemen. If this will attract them, simply because they know there are men in there better qualified than they, if they are willing to give up those things to come within the fold of respectability, then the code is an excellent and virtuous thing.

I don't understand what an 'incipient quack" is. I think a quack, like a gentleman, is born. I think no man who is a genuine quack ever stands any chance of reformation, while it takes but little to reform a gentleman. I had a case I want to call your attention to. Sometime ago a young fellow of whom I am very fond, and who is a member of this society, got up some advertising literature and was preparing to send it out. He had begun practice a few years ago, failed in some way to make good, as he thought he should, and then decided to advertise. Through a mutual friend I received some of this literature he had gotten ready to distribute. He had not done so, but was contemplating it. This other friend sent it to me because he knew the boy could not, under any circumstances, afford to distribute it. Then I sat down and wrote the young fellow a letter. I wrote in as kindly and brotherly a way as I could possibly do. I called his attention to the error he was about to make. In the return mail I got the most contrite letter I ever read. He told me his troubles and the serious difficulties he had in making both ends meet. He saw, however, that he was about to abandon principles that would forever taint him. He asked my forgiveness, and also asked me never to mention that he had done such a thing. Not long after that I saw him and went into his circumstances very carefully with him. I was able to give him certain advice from my own experience which enabled him to correct some mistakes he had made in his efforts to accumulate a practice, and in a very short time he profited from the advice I gave him and is doing well. I know there is no one in the state of Indiana happier than he, because he failed to do that unethical thing.

Dr. Thomson: Dr. Sexton refers to Section 4, Article II., of the code, and manages to make it mean that you should never accept as a patient anyone who had been a patient of any other practitioner. It seems the meaning is plain, though the wording might be improved. It simply means, if you are consulted by a patient who has become dissatisfied with the treatment he is receiving at the time from some other practitioner, and "if the interests of the patient will not be endangered thereby, the case should be referred back to the family dentist." Is there anything unjust about that?

Dr. G. S. Wampler, Redkey: If Dr. Thomson came down here for the purpose of shooting the paper full of holes, he has made a grand success. There is one thing I will say in defense of the paper, and that is, I know the code is keeping out a great many dentists who should be in this association. A few days ago I had an opportunity to visit a very good friend of mine who is doing as nearly an ethical practice as anyone can. In fact, he has not his name on the window even, and he is the highest-priced man in his section of the country. I asked if he was coming to the state meeting, and he said he was not a member of the association. He said he could become a member, but he did not want to go in. I asked him why, and he said: "Well, I have practiced dentistry on an ethical plan ever since I graduated, and I think I shall always do so, but I cannot tell; I might want to vary my plan some time. I have no idea now that I ever will, but for fear I might want to at some time, I shall not join."

Yesterday, on my way down to Indianapolis, I had time to run in and visit a dental practitioner, and asked him if he was coming to the state meeting. He also said he was not a member. I told him he could become a member if he wanted to, because he was doing an ethical business. He said, "Yes, but I may want to change my way of doing business at some time," and went on to make the same argument the other man had. An hour or so ago I met a man who has practiced for 14 years, and has always done an ethical business, and I asked him why he was not a member of the state association. He said: "I have been a dentist for 14 years and have always done an ethical business, but I don't know what I may want to do in the future." Now these three men, within the last ten days, have made the same argument against joining the association. The point I am trying to make is that the code of ethics is keeping a great many people out of the association.

C. W. Throop, Muncie, Ind.: I wish to compliment the essayist on this paper; also, I think the association is to be congratulated on having such a paper read here. It is a masterly paper, and it does not matter what subject he has, if he handles his subject in a masterly way.

I think we will have to admit that there is a screw loose in association affairs. While the paper may be somewhat radical, I think it is very timely.

This association has been floating along for almost 50 years, and it seems as if we do not get anywhere nearer the people nor anywhere nearer the majority of the dentists in our association. I feel that we have needed, for at least five or six years, just such a paper. It will start us to thinking on the important subject of getting right. I am not wise enough to tell you where we are wrong, nor the way to get right; but I am sure that when we are stirred up by a few such papers as this, find out that we are sick and what the trouble is, it will be the means of our getting our heads together to find a remedy. I really feel that this is the best paper that has been read before the state association for sometime.

It will be of more profit to the association than anything that has been said or written for a long time. Our greatest bugbear is the advertising man. Now let us consider why we have the advertising man, for we hear more of him in the association than we do in our places of business. Up in my town we don't hear about the advertising man. There are men there who are doing an advertising business; they are respectable men and the laity do not know the difference between the advertising man and the non-advertising man. He gets a certain amount of business if he does his work right.

When a man comes out of college he at least expects to make a living, but when he sits down in the office which father has furnished, or perhaps still worse, the dental supply house has furnished for him, and business does not come in, and the creditors are hammering him for money, he begins to look about him for a means of taking care of his obligations.

When he comes to look the situation over, he says: "I must make a living, and how shall I do it?" Then it occurs to him that the college from which he came had an immense business. He wonders how they got it. He reads some of the advertising matter, and the inducements they have offered, and finds out that the college has said to the people, "You can come down to our place and get dental work free." Then, when he thinks it over he finds out that this statement is just a little of a fake. They tell their patients when they get them into the college, often when they get them in the chair with the rubber dam on, that they will have to make a charge for the material, etc. Then the young fellow fixes up an advertisement along the line that he has been taught, gets a good practice and lives like a decent man. If this experience is not his, if he should be fortunate enough to get a practice without the means of advertising, he knows of some one who has had to resort to the above means. And when he is asked to join the association he feels that he does not care to take the obligations, and he says your code of ethics is all bosh.

I was told that I would be a great man if I stuck to the code of ethics, but it has not done anything for me. I am not sure that we should do away with the code of ethics, but we can put a different interpretation on it.

Our churches are not the same as they were 50 years ago—they are more liberal; political parties are not the same as they were 50 years ago—they are more liberal and have a broader platform.

Why should this association continue on a code of ethics that was provided 50 years ago by men that were up to the times of that age, when people traveled horse-back; and it would have taken them at least three weeks to come to this meeting, wherein we came in a little less than five hours. I think that the times demand a change. I think this paper is the very best one on the subject that could be written.

DR. COOK, CHICAGO: I was interested in the paper and also in the discussion. I didn't know Thomson was so bright as he appears to be. Dr. Sexton referred to the Illinois State Society, and I think I might say at least a few words in reference to that. I shall also make some reference to the code of ethics. The Illinois State Society is patterned almost entirely after the Illinois Medical Society. They adopted the plan he speaks of first. They went out and organized local societies all over the state, and in various sections of the great cities, and by reducing the fee and making a man's membership fee in his local society so much he could become a member of both societies for less than he could become a member of one of them before. I don't believe the organization there is mechanical in the sense meant by the Doctor. Men get to know each other when they associate together. Some men enjoy societies; they enjoy discussions on the subjects they are interested in, while others do not. This year at the meeting of the Illinois State Society only about half the members were present, but all the members are also members of some local society and they get all the proceedings of the state society. The proceedings are published, and an arrangement has been made to send the journal to each member of the society for a year. Each member can also get a bound copy of the proceedings for 50 cents, if he wishes it in that form, for his library. If for no other reason, a man might become a member of his local society and of the state society in order to get the proceedings and know what is doing. I think many have joined for that purpose and found it so useful that later they attended the meetings.

A personal canvass was made of the communities and we talked to the men about organization. They were got together and told what was necessary. Many of the dentists who came into the society were advertising men. They were told they must drop that kind of business; that it was not profitable to them in the long run; that they could put their cards in their windows, but further than that they could not advertise. They joined the state society and dropped their advertising. Of course there are many young men who go out and begin to practice and do not succeed very well at first, and when they strike hard times they begin to advertise, not because they learned it in the schools, but because they thought they could draw a few patients in that way. Then the supply houses try to encourage them in it. I think that is usual with the supply houses, and if anybody gets a kick from them it is the ethical man. The social and family life of the advertiser are different from the social and family life of the other man, and he looks at this matter purely from a business standpoint. He thinks if he can just get his name before the public some way or other he will succeed, that the public is wanting his services very badly, and he must advertise in order to make himself known. Finally he gathers around him a class of business that is not pleasing to him, and he gets the idea that the fellow who is in the society and who is a bigger man thinks himself better, because he conforms to the code of ethics; so he gets disgruntled and follows up his evil ways.

I think the thing to do is to get into personal contact with such men. I think the young man over there who spoke of three of his friends who gave their reasons for not joining has made an impression on them, and if he talks to them again he may get them into the society next year. Dr. Black and I each made 12 calls on one dentist before we got him into the society. He thought some of us were running the society for our own benefit, and that if he went to the meetings he would have nothing to do with the subjects to be discussed. We make it a point to get the new members out and get them interested in the work of the society. I suppose Dr. Arthur Black wrote 10,000 personal letters last year. He is chairman of the society, and of course the chairman always does all the work. His bill for postage and stenographic services was quite enormous, but it was money well spent. We got the men into the organization. I believe the organization in Illinois will be of great benefit to a lot of young men who are coming in and who will probably always remain. Last year the program was made up very largely of new men; there were only three or four men who had ever been on the program before. Get hold of the young man, take him into the society, make him feel at home and give him something to do. He will feel a more personal interest in the society if he has something to do, even if it is only carrying the programs to the hall. Just keep right after them and show them the code of ethics is not for the purpose of keeping them out, but that we must have some standard whereby we can regulate our society and our work. Show them how easy it is to live up to the code of ethics if they want to do so. One of our men violated the code by advertising. We did not turn him out, but we went after him. He was told he was too nice a fellow to do that and that he did not have to do it. One of his neighboring dentists sent him some plate-work and other things to do to tide him over until he could get other work. He reformed.

I believe this paper and the discussion it has brought out will be of great benefit, if not today, some other day.

Dr Bethel: I was pleased to hear the paper. I like to see a man stand up for his convictions. I do believe, however, the suggestion Dr. Sexton made in regard to a lower initiation or membership fee to the recent graduates a good one. I know that many young men just leaving school feel very poor, and are very poor; they count every cent as many others would count the dollars. If they are allowed to go when there is an opportunity to get them interested in the association work, you may not be able to get them later on. If they start their practice and feel for several years as though they could not afford to join the association and attend the meetings, they become indifferent to associations and association work. In fact, they do not then realize the advantages of the association. Then we have to go after them, and it is not as easy to secure their membership as it was at first. If they can be gotten into the association as soon as they graduate, and kept interested in it, if they are put to work in some capacity or other, they will soon find out there is an advantage in attending the meetings. Too many of them say: "Oh, I can read the papers and discussion as they are published in the journals. I don't have to go to the meetings. I can stay at home and save time and make money." That is a poor argument. I believe that every man who attends the meetings derives benefit from the personal contact with his fellow-men, and the social side of these meetings is stimulating. I believe when we return to our offices after attending these meetings we feel we are better dentists, and we feel more interested in our work.

Now, in regard to the code: I don't feel as though we should let down the bars entirely. I feel that medical, dental and other associations should have something of this sort. Perhaps it need not be as lengthy as our present code. Something else might do, for after all, as someone has said, it is a man's conscience that makes him do right. What good would our churches do if they had no laws or if they disregarded the Ten Commandments? Would they do as much moral good as they do at present? Would the different political organizations be as strong if they had simply one central state organization and no county and township organizations?

I believe the organization in Illinois is doing what should be done in every state to obtain a thorough organization. It may be hard work to get the members, but I believe it can be done, and if you can get them you are doing a great good for the profession?

If we had no code the profession would not be held up to the standard it is at the present time, for we all know the tendency of quackery is to lower prices and in various ways lower the standard of dentistry. I believe also if one only is reminded of the Golden Rule, that will be code enough for us. I believe we should have something to guide us and keep us right and keep the profession elevated.

Dr. Sexton: We are all tired and hot, and I am hotter than any of you, so I shall draw this very short. Dr. Thomson said the code of ethics did support him and help him, and he produced that as evidence why we ought not to do away with it. He confuses the two things I especially warned him against, the written code and the unwritten code. It is foolish for him to say the written code makes him a professional man. If we repealed the written code we all know Dr. Thomson would not be a quack. He has the unwritten code in his heart, and that is sufficient for any of us. The paper is not a plea for quackery or bad business methods; it is a plea for the incipient quack, and there is a great distinction. For the information of Dr. Henshaw, I will say incipient means in the early stages. He can find it in any dictionary.

Dr. Henshaw spoke of a man he had caught in the incipient stages of quackery. He did what the association ought to be doing all the time; he went to that man, put himself on a brotherly footing with him, tendered him advice and sympathy and braced him up. The association does not do that. When a man is in that condition the association comes at him with a sledge-hammer and hits him over the head, and of course the man hits back. If Dr. Henshaw had treated that incipient quack as the association would treat him, his reformation would never have been brought about.

Dr. Henshaw says that the essay is shot full of holes. That may be, but if he means by that that any single argument in it is disproved, he is much mistaken. We have an old regimental flag down in our town that is shot full of holes, too, but the cause that flag stood for is pretty vigorous yet. What matters a few holes!

Now as to the attendance at the manufacturers' meetings in Indianapolis and in Chicago. I evidently did not go to the best authority for my figures, and I seem to have stubbed my toe very badly. I asked several people who attended the meetings and they gave me the figures I quoted. I never was very strong in mathematics, anyway. But these are mere shot-holes. They make not a particle of difference one way or another to the argument of my paper.

Dr. Thomson says we are on the same basis exactly as the churches. If he will turn to the front page of the program he will read: "All Ethical

Dentists Are Cordially Invited," which means that unethical ones are forbidden to come. Does not a church open its door to all, to the sinner as well as to the saints? Dr. Thomson may see no difference here. No one is so blind as he who will not see. I see a great difference, and I am sure you do. I am positive time will prove my position the right one, although I did not expect many to agree with the paper, at least until they had thought over it awhile. However, I have accomplished one thing, and that is, I got Dr. Thomson started. That is sometimes a hard matter, and I ought to be congratulated for doing it. In having him against me I am at a disadvantage, for Thomson, you know, is a funny man, and I cannot talk against a funny man. I throw up my hands every time when it comes to that.

The interpretation Dr. Thomson gives to the section of the code of ethics quoted may be what that section was intended to mean, but any student of English will tell you that it does not mean that at all; it says something else very plainly. I knew I would get Hail Columbia from Dr. Thomson because the first thing he did when I arrived was to shake his fist in my face and say, "Sexton, you are a damned anarchist!"

DENTISTRY, PAST, PRESENT, AND FUTURE.*

BY NORMAN H. MORRISON, D. D. S., RED CLOUD, NEBRASKA.

When the Greek historian, Heroditus, left his then comparatively barbarous Grecian home, bound for Egypt to learn the sacred mysteries, and the sciences in the world's earliest nursery of learning and civilization, on the banks of the Nile, he found surgery and medicine divided into distinct professions.

There were surgico-physicians for the eye, others for the ear, for the teeth, and so on for the different classes of diseases the appropriate professor was found. This division, by an unalterable law of the human mind, would have given great skill and efficiency to the various practitioners, had not each been confined under a penalty of death, to fix prescriptions.

But to what extent the remedies and modes of practice at this early period of the world's history were successful in the cure of disease, the chasms made in the annals of ancient art and science by the destruction of the Alexandrian library, must forever leave the world in ignorance.

Greece and Rome, in their most palmy days of splendor and prosperity, cultivated the art of dentistry, chiefly in aid of the charms of beauty; but to what extent from the paucity of medical works which those nations left behind them, it is impossible to determine.

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*Read before the Nebraska State Dental Society, 1906.

When vandalism shut down upon the world, and learning itself was hidden in the gloom of the dark ages, then every torchlight of science feebly glimmering o'er the waste of ignorance and superstition, and every star that shown in the moral and scientific horizon, were quenched in that chill of night of ages which threw their deadly penumbra over the world.

In 1579, about the time of the revival of letters, Ambrose Pare, in his celebrated work on surgery, gave evidence of the vitality of dentistry amidst the awakening chaos of ancient science and erudition. His remarks upon the teeth were a promise of what the present age is fulfilling in this branch of physical alleviation, yet they were intermixed with numerous absurdities and impossibilities which half awakened science had not yet shaken off, as she was slowly rousing herself for her final, her noblest triumphs.

In 1771, John Hunter wrote the first, and in 1778, the second, part of his celebrated treatise on the teeth, on which the broad and firm foundation of the English School of Dentistry was laid. What Hunter was to the English School of Dentists, Bichart was to the French school. Neither Hunter nor Bichart were practical dentists, but the mighty energy of their minds embraced the dental with other branches of surgery, and the principles of physiology and pathology at large included this important branch, and revealed the connection and sympathies of the teeth with the entire framework of man.

EIGHTEENTH CENTURY ADVANCEMENT.

During the eighteenth century dentistry made more progress; it became a subject of more critical inquiry and thorough investigation. It was now cultivated in England and France by men of considerable talent, and a number of elaborate works treating exclusively upon the subject emanated from the press during this period. But, notwithstanding the numerous contributions that were made to the art, and the numbers of scientific and ingenious individuals that engaged in its practice, it had even at the beginning of the nineteenth century attained a very high state of excellence.

It was during our revolutionary struggle for independence that the first knowledge of dental surgery was introduced into this country, and the first dentist of whom we find any account was a man by the name of Le Mair, who accompanied the French army, which came over to our aid during that period. Soon after the arrival of Le Mair a dentist by the name of Whitlock came over from England. With regard to the professional abilities of these men, little is known, but it is probable that they were limited and that their practice consisted chiefly in the carving of artificial teeth from ivory blocks.

John Greenwood was probably the first native American dentist, and in 1790 was said to be the only dentist in New York City.

He was joined in '94 by Mr. Woofendale, from London. About this time a Mr. Spence, who had obtained some instruction from Le Mair, commenced practice in Philadelphia.

In the meantime the works of Hunter and some of the French authors, having been brought to this country, contributed in no small degree to awaken increased zeal in the cultivation of the art. But the practice of dental surgery in the United States up to about the year 1800 consisted for the most part in extracting, cleaning, and filling the natural teeth, and the replacing of these when lost by artificial ones constructed chiefly from ivory, but a brighter era in dental science commenced with the ushering in of the nineteenth century.

Profiting by the experience of the past as well as by the spirit of enterprise and improvement which was now rapidly diffusing itself abroad over the civilized world, and nerving the energies of mind for new and greater achievements in every department of science and art, a few of the practitioners of dental surgery, animated by a spirit of noble emulition, devoted themselves to its cultivation with an enthusiasm and zeal that faltered not at any obstacle that interposed between them and the summit of professional excellence.

From this period dentistry began to be cultivated as a science and as an important branch of the curative art. The preservation of the natural teeth began now to be regarded as of more importance than the insertion of artificial ones.

But an event was now approaching in the history of dental surgery in the United States which gave to its progress a new and unexpected impetus: the establishing of the American Journal and Library of Dental Science, 1839. This was the rising of the morning star of improvement and was soon followed by more palpable evidences of the approach of daylight to the scattered members of the profession, who had long toiled in obscurity almost unknown to each other and the world.

The forming of the American Society of Dental Surgeons soon followed. The Journal aroused the dormant energies of scores, who had learned much of the science and art in years of toil; but who before had not found any appropriate medium through which to communicate their knowledge to the profession. A few months previous to the institution of the American Society of Dental Surgeons, the legislature of Maryland chartered a college with four professors, for the purpose of affording more ample facilities of instruction in the branches of knowledge necessary to the education of an accomplished dentist than could be furnished by any private tutor, so that when the student entered upon the active duties of his profession he was enabled to practice it not alone as a mere mechanical art, but upon sound scientific principles.

GROWTH OF DENTISTRY IN THE UNITED STATES.

There is something beautiful in the contemplation of the introduction and growth of dentistry in the United States.

From Europe the first glimmering lights of the profession, as has been shown, were introduced almost by chance, like wandering rays from a distant source; but those rays fell upon a country full of the boundless materials of science, a luxuriant field for its development, an enterprising inventive people, and no wonder the result has been the astonishing perfection to which it has now attained.

The highest and most ardent ambition should be cherished by the profession today redeeming the time and putting each moment to its appropriate use.

How well the pioneer dentists of America served their profession in the drawing of the plans and specifications for the upbuilding of the modern profession of dental surgery, and when they broke ground for its construction in the establishing of the American Journal of Dental Science; they made ample provisions for a firm foundation. Ere they reached the laying of the cornerstone, the establishing of the American Society of Dental Surgeons, they realized their unfitness for this special class of work and immediately took steps to charter a college, the Baltimore College of Dental Surgery.

Thus, in rapid succession, followed state societies, colleges and dental laws, until at this, the beginning of the twentieth century, we find ourselves associated with a profession which is calling to its ranks some of the brightest minds of the day, whose inventive genius and research in the arts and sciences are producing appliances and modes of practice which receive not only the plaudits of our own profession and suffering humanity, but our parent profession as well.

CONTRIBUTED COMFORTS OF HUMAN LIFE.

Dentistry has of necessity absorbed considerable, but has contributed much more to the cherished comforts of human life.

"To Dr. Horace Wells we owe the practical application of nitrous oxide; and when he placed himself on the altar of science, and proved to the profession and the world the anæsthetic effects of nitrous oxide, he laid the foundation, so to speak, of our present system of surgical anæsthesia."

"To Dr. Morton, who chemically demonstrated the sleep-producing qualities of ether, and to Dr. Jackson for chloroform, humanity owes the greatest debt of gratitude, for it has produced the modern surgeon, opened the way to cranial and internal surgery, and has taken from the operating room the hitching-post and straps, and bequeathed in their stead the vapor of sweet dreams."

Also, as Dr. Cigrand has said, "Dr. Atkinson took the speechless child, and after restoring the cleft in the palate, taught the world that where distortion of features and muteness of voice existed, both could be displaced by beauty and eloquence."

To Miller we owe the knowledge of hundreds of forms of bacteria; he gave us light on cell physiology and evolved the scientific etiology of dental caries."

Who can better serve humanity than the orthodontist, when he takes the little lass with her irregular and deformed features, and transposes them into regular and harmonious symmetry, and she blossoms into womanhood, a Diana, one of the greatest gifts God bestows upon the gentler sex.

And once again the modern dental surgeon comes before the world, and serves in a capacity that draws him very near to the heart of an anxiously waiting father or mother as they enter the morgue and view the remains of charred and mangled humanity, unable to recognize any of those familiar features whereby they may know for a certainty the fate of their loved ones. Thus compelled to spend the remainder of their lives in anxious waiting and doubt were it not for the dentist who produces his charts, goes to the morgue and reveals beyond a doubt the identity of those whom they seek.

Thus has the profession, through the untiring efforts of its foremost members, become recognized as one requiring culture and talent, such as none other, for the successful performance of its many and varied operations. The time is now at hand when our college doors should cease to open to all who knock for admission, but be barred to those who possess not the qualifications to allow them to enter any of the other higher walks of life. Modern dentistry as a true science and art should be built upon the foundation of a generous early education enlightened by a complete medical course of instruction, and especially trained by a full term of practical pupilage. Such dentistry will exercise influence of its own and command respect among kindred professions.

Limitation in the amount of mental culture, and when not properly directed if combined with the inevitable influence of an all-exclusive pursuit, whether of science or business, results in a rapid increase in numbers of men, whose vision is limited by the narrow horizon of their special occupation, and men who possess none of that large-minded liberality which is the outgrowth of a generous education. It is by such early restriction of thought and action within the narrow grooves of life's future pursuits that a physician is often unknown beyond the sick room; a surgeon contributes nothing to the cause of science and dentists make such unworthy pleas for professional recognition and social positions.

It requires the broadest literary and classical education of boyhood to counteract the necessarily narrowing influence of the professional studies of manhood, and it demands the largest possible infusion of purely scientific teaching during professional pupilage to correct the matter-of-fact influences of practice. If no early education has given habit of study, the fascinations of hand-work are permitted to engross time that should be given to the harder and more distasteful head-work; also scientific mechanism implies not only skill in construction, but judgment and purpose in application; training, commencing and ending in mechanism, is discreditable because it necessarily fails to accomplish that which it promises, making dental labors and tradesmen, but never dental artists. It also encourages the antagonism of trade and pure science, bringing into professional life the laws of barter, and applying them to the brain work and its products.

MERCANTILE RELATIONS.

Mercantile relations of cost and price are capable of definite adjustment when applied to commodities of known values enhanced by labor at given rates. There is also data upon which the speculative fluctuations of prospective supply and demand are based, so that in all bargains buyer and seller may stand upon the ground of equal ability to judge these questions; but professional service is amenable to no such standard. The conditions of honest barter are absent, for client and patient alike depending upon the integrity of the professional man, hence professional bargaining is dishonorable, and inevitably leads to the rendering of a disreputable grade of service.

All professions have suffered much from this perverted application of mercantile law to professional fees, but none so severely as dentistry. This is due to the prevalent idea that the gold-filling and artificial denture are as legitimate objects of barter and contract as any other tangible article of manufacture, whereas in reality they are no more so than the surgical operation or medical advice.

When the dentist forsakes the vantage ground of a professional fee for services rendered, and condescends to bargain for the definite products of his skill, he at once destroys the professional character of his position and lends a helping hand to the quack of the dental parlor. Not only does he lose cast, but in the class to which he has descended the question of price invariably leads to the consideration of cost, and the quality of his work, slowly, perhaps, but surely, deteriorates. Fee first and work second is fatal to all progress in art or advancement in science. The result of such competition is, to honest men, a life of slavish toil, with no time for self-improvement; to others a deliberate slighting of work which destroys all the nobility of a man's nature.

Such are the results of some of our practical systems of education, dentistry not excluded; they often teach boyhood to take a utilitarian view of every lesson learned, and encourage young men to neglect studies in which they cannot see some prospective pecuniary value. It is the application to science and art of that philosophy of life which subordinates mind and body to that one idea of making a living, that spirit of trade which regards classical study a waste of the years in which plastic youth can best be moulded into the mercantile idea of profit and loss, thoroughly instilling into their minds the spirit of competition.

THE SPIRIT OF COMPETITION.

Competition may be the life of trade, but it is the death of all art, industry and beauty; it is the sepulchre in which moulder all high ideals and noble impulses. To the early instilling of this spirit of competition I attribute the lamentable fact that in our smaller towns more especially the greatest coldness often exists between the members of our profession; selfishness seeks hospitality in their hearts; jealousy often leads to innuendo and hint and shrug of the shoulders if not too specific and open charges.

Where the spirit of competition is dominant, nothing, it is true, is more difficult than to be absolutely fair with man.

A GOOD FOUNDATION.

As a profession, then, let us impress upon those seeking to enter into our ranks the necessity of the broadest possible foundation, for it is indeed the spark that kindles the fire of professional ethics and brings into professional life that spirit of sacrifice, mutual assistance and fraternal affection whereby we regard our fellow-practitioner, not as our common enemy whom we must meet and conquer, but as our fellow-soul, co-worker traveling along the same road, struggling to arrive at the same goal.

This must be our guiding star to all future progress, and as we look into the distant future made possible by its beaming rays, we behold a profession composed of men of the highest type of manhood, broad-minded and liberal, distinguished among their fellow-professions and serving mankind with skill and self-sacrifice, enjoying the highest type of professional ethics because built upon manhood. Conscience is the code that must prevail, and last but not least, that spirit of trade and competition which has been a menace to all progress in the past, has it's fetters broken and the profession redeemed from the slavish life of the past. We may now assert our high birthright and live in universal consanguinity with our brother professions.

NITROUS OXIDE.

BY CHARLES K. TETER, D. D. S., CLEVELAND, OHIO.

(Continued from Page 35, January 1907 Number).

Anæsthesia, then, is due to molecular paralysis, which condition is brought about by the peculiar paralyzing energy of the agent, which interferes with the processes of oxidation as to impair the function of the nerve cells. The initial period of excitement is the result of the paralyzing energy of the anæsthetic, as well as the loss of consciousness, which is an advanced stage of the process.

When nitrous oxide with the proper proportion of oxygen, for example, is inhaled, it passes directly through the alveoli of the lungs and the walls of the pulmonary capillaries and is dissolved in the blood. It is carried to the left side of the heart through the pulmonary vein, and thence through the medium of the systemic circulation to the most distant parts of the body. The immediate effects of the anæsthetic are, therefore, experienced first by the tissues which constitute the walls of the pulmonary veins and the coats of the cornary arteries.

In the coats of the vessels are placed the ganglia of their vaso-motor nerves. Upon these as well as upon the other constituent tissues of the cardiac blood vessels, the paralyzing influence of the anæsthetic is directed.

The muscular walls of the arterioles after a brief period of contraction, relax by reason of their diminished tonicity, thus effected.

An increased supply of blood is distributed to the muscular substance of the heart and its intrinsic ganglia. This increased flow of blood serves to increase the function of both nerves and muscles.

The heart contracts more vigorously and propels a larger amount of blood to the brain, to spinal cord, to every portion of the body. This sudden impulse increases the proportion of blood throughout the arterial channels and arouses the activity of various tissues everywhere. A general, though temporary increase of function in all kinds of tissue is the result, more pronounced in some cases than in others. This excitement, however, soon effects its own arrest, as the tidal air in the lungs may be increased as above stated, and the blood becomes rapidly charged with the anæsthetic agent, which soon extends its paralyzing influence beyond the walls of the circulatory canals, and invades the higher nervous ganglia.

As their functional activity subsides the accelerating influence upon the circulation is diminished, and the rate of the pulse recedes in the direction of its normal figure.

When complete anæsthesia has been induced it can be maintained by establishing an equilibrium between the introduction and the elimination of the anæsthetic vapor, the anæsthetic process being continuously sustained with a uniform degree of intensity. If the introduction of the anæsthetic be compelled beyond the power of the tissues to free themselves, they become supersaturated with the substance, and one after another the nervous elements pass into a condition akin to rigor-mortis, and systemic death is the final result. This process is more or less hastened, of course, by an energetic agent, or a substance that is not readily eliminated, and has the power to form chemical compounds with the other elements while in the organism. For these reasons some anæsthetic agents are more dangerous than others.

The above is a general description of the phenomena that takes place with an anæsthetic agent properly administered; but there are many deviations where we have an asphyxial as well as an anæsthetic agent, nitrous oxide being such an one. If administered pure and free from oxygen, the initial phenomena would be the same as with other anæsthetics (except that there is less irritability to the mucous membranes); but instead of the blood pressure returning to near the normal, as is the tendency, it would gradually increase, and death would ensue from asphyxiation.

Experiments have shown where it was possible to see the brain tissue through an opening in the plate of the skull, that at the first inhalations of nitrous oxide the pulsations of the brain were more pronounced and the brain gradually filled up the cavity of the skull, and changed from the natural pinkish color to one of dark purple. As the administration continued uninterrupted to complete unconsciousness, the brain tissue protruded into this opening and had a color near that of stagnated blood, and the pulsations were barely visible. On discontinuing the administration and air being inhaled, the brain gradually returned to its normal color and position.

Now we will compare this phenomena to that obtained with the same anæsthetic when pure oxygen is used in connection.

We would notice the same initial effect, but the brain would maintain nearly its normal color and position, only varying as cyanosis appeared, indicating a deficiency of oxygen, and as this deficiency was made up would again return in the direction of its normal state.

The theory has been advanced that nitrous oxide always dilates the brain until it fills the entire cranial cavity, before anæsthesia results.

Reasoning this way, they account for the almost impossibility of inducing anæsthesia in a patient who is addicted to the morphine or cocaine habit, as they claim the brain to be in an abnormally contracted condition. My experience, however, will not bear out this theory, as the brain does not dilate to any great extent when oxygen is used in connection with the nitrous oxide, but we get anæsthesia from the nitrous oxide just the same. Therefore the dilation of the brain is a condition due to non-oxidation, and increases in proportion to the deficiency of oxygen.

This has nothing to do with bringing about true anæsthesia, otherwise than that which would follow from the partial interference with the processes of oxidation due to the action of the anæsthetic agent.

In regard to the comparative safety of the different anæsthetic agents, statistics differ somewhat, but we can get a fair idea from them, and they all agree that nitrous oxide has been more free from fatalities (and almost without any attention being given to the general condition of the patients) than any of the others. Its use has, to a great extent, been limited to momentary operations, which account somewhat for the low fatality rate, but there have been reported a few fatal results either directly or indirectly to the nitrous oxide. I know from experience that this agent could readily bring about fatal results, on account of its rapid absorption and asphyxial action, if oxygen was withheld altogether, but it is practically without danger when given with proper proportions of oxygen, as there is yet to be reported a single fatal result from this mixture. It is all the more wonderful, for with this combination we are now carrying on anæsthesia to the completion of capital operations. The reason that this agent is almost free from fatal results lies in the fact of its extreme volatility, whereby it is rapidly eliminated from the system, and as oxygen hastens this elimination, we have this extra precaution. And the fact that nitrous oxide does not enter into any chemical compound with the elements of the body while in the organism is another reason for its safety, as it leaves the tissues in their normal condition.

My experience with this anæsthetic has covered a wide field for the time I have devoted exclusively to the work, and extends from the extraction of teeth to an abdominal section. The idea prevails among many of both the medical and dental profession that it is practical only for momentary operations. To show its adaptability to all forms of surgery and its superiority over either chloroform or ether as to after effects, will cite a few of my own cases.

On July 18, 1904, a dermoid cyst was removed by Dr. C. B. Parker, at the Cleveland General Hospital, under the anæsthetic nitrous oxide and oxygen. The patient, a woman about 30, was somewhat emaciated and debilitated. There seemed to be no cardiac or lung complications. Though there was a small goiter, it caused no respiratory embarassment.

The patient was to have been operated on a few days previous to the 18th. and was taken to the operating room, where anæsthesia was induced by chloroform, but at the second stage, or as consciousness was lost, ether was substituted on account of its safety. But just as the surgeon was ready to operate, the respiration became very shallow and soon ceased altogether. Artificial respiration was resorted to at once, and in a short time the patient was breathing naturally, and the ether administration was again commenced, when there was a repetition of the first attempt.

When anæsthesia became profound enough for surgery, respiration would cease, with apparently no outward cause or cardiac symptoms.

Dr. Parker refused to operate under ether or chloroform. The patient was taken back to her room, and on the 18th I was called to administer nitrous oxide and oxygen.

The patient showed no unusual signs of nervousness and breathed the anæsthetic without any hesitancy. Ninety-seven parts nitrous oxide to three of oxygen was used at the beginning and rapidly increased until there was 12 parts oxygen to 88 of nitrous oxide.

The respiration was shallow from the beginning, the valves in the inhaler hardly moving. But, as before, at the profound stage respiration ceased, without, however, any asphyxial symptoms.

The nitrous oxide was at once discontinued and pure oxygen forced into the lungs, and expelled by pressure on the chest. After being repeated three or four times, respiration became natural, and I at once turned on 80 parts of nitrous oxide to 20 of oxygen, and the respiration continued throughout the operation, though very shallow and at times imperceptible, yet the color of the face was somewhat florid.

As soon as there was relaxation of the muscles, Dr. Parker began operating. The first incision acted as a stimulant to the respiration, which improved for a time. The case proved a very interesting one.

Profound surgical anæsthesia could at no time be maintained, as respiration would cease, but with this anæsthetic, a zone very narrow indeed could be maintained, that kept the patient unconscious and relaxed, though not in a state of profound anæsthesia. The patient would frequently repeat such words as, scissors, oxygen, and others spoken by the attendants.

However, there was not a single muscular movement throughout the operation, which lasted 25 minutes, and the usual number of stitches were taken that any laparotomy would call for.

When we consider the profound state deemed necessary for an abdominal section, this case seems all the more remarkable.

Upon recovery the patient had no recollection of anything that had taken place or the words spoken by herself.

There was no nausea or after sickness, and recovery was complete and without incident.

There are many questions arising as to the cause of the cessation of respiration at this particular stage under all these anæsthetics, without asphyxial symptoms. This can only be conjectured, for we seem not to know, for a certainty, just what changes take place in the blood and the nervous system which result in anæsthesia.

The order in which the anæsthetic affects the nervous system, however, is as follows: The cerebral cortex, the cerebellum and ganglia of the base, the sensory tracts and centers of the cord, the cerebro-spinal moter tracts and centers, and lastly the respiratory and cardiac centers.

The rapidity and intensity of the paralysis of the centers varies greatly according to the type of the patient, and also the nature of the anæsthetic agent used.

With this patient the zone of safety between the narcotic and lethal dose was extremely narrow, and to affect the sensory and motor centers without affecting the respiratory centers was a grave problem.

Dr. Parker makes the statement that he does not consider the operation to have been possible under any other anæsthetic than nitrous oxide and oxygen.

(To Be Continued).

COMPILATIONS

A SHORT METHOD OF MAKING GOLD CROWNS.

BY GEORGE T. BANZET, B. S., D. D. S.

Although the gold crown is not used nearly the same extent as formerly, yet there are many occasions where it is indicated, and to keep pace with the progress in other branches of dentistry, it must be perfect; first, in adaptation to the root, so as to reduce gum irritation to the minimum; and second, the *perfection* of occlusion must be obtained, which perfection can only be obtained by carving the cusps.

My method includes the fitting of the ferrule to the tooth to be crowned, and said tooth should always be devitalized, as only a devitalized tooth can be properly prepared to receive a crown, and future trouble be avoided. When the ferrule is fitted, leaving just sufficient space for the cusp between the top of it and the occluding surface, a combination bite and impression is taken with modeling compound, and mounted on a crown articulator with plaster of paris.

After the plaster has set, and the modeling compound removed, nearly all of the plaster is removed from the inside of the ferrule, leaving just sufficient to maintain its attachment to the model.

A portion of modeling compound, sufficient to obtain an impression of the occluding surface is placed in the ferrule, the articulator closed and the compound chilled, the articulator then opened and the cusp carved, and the carving finished by making a slight depression in the compound at the top of the ferrule, slightly exposing its edge. The ferrule and cusp is then removed from the model and invested in a Brewster cup containing modeling compound very much softened, and then quickly chilled so as to avoid changing the shape of the cusp.

Pure gold plate, 38 gauge, is placed on the cusp, the cup put into the cylinder and swaged with the water bag, in the Brewster press, which will give a perfect reproduction of the cusp, with the top of the ferrule clearly defined, this indicating where to trim off the surplus.

The cusp can then be filled with 22k. solder, and united to the ferrule, giving a perfectly fitting crown.

This method is chiefly recommended because of its obviating the necessity of securing either die or counter-die, thus very much shortening the operation, without in any way detracting from, but rather increasing its accuracy.—*American Dental Journal.*

SOME CAUSES OF FAILURE IN CROWN AND BRIDGE WORK.

J. Q. BYRAM, D. D. S., INDIANAPOLIS, IND.

So much has been written by many able writers about crown and bridge work, that I feel reluctant to attempt an article on this subject. But to fulfill a promise to you, Mr. Editor, I shall take up some of the causes of failure in this line of work.

We might ask, what constitutes failure in crown and bridge work, and in reply we shall suggest that improper preparation of abutment teeth, ill fitting crowns, ferrules impinging on the pericementum, faulty joints, poorly shaped cusps and improper articulation, lack of rigidity of the bridge and lack of attention to the æsthetic requirements, are some of the causes of failures of crowns and bridges.

There are many teeth that are improperly prepared for the reception of crowns and there are still many dentists who believe it almost criminal to devitalize pulps in sound teeth that are to be used as abutments for bridges. While there are a few teeth, with vital pulps, that can be properly prepared for shell crowns, my experience with such methods of practice has caused me to believe that most teeth of normal shape with vital pulps cannot be properly prepared for the reception of crowns unless the pulps have been removed. The sensitivity of vital teeth precludes the requisite amount of grinding for their proper preparation for shell crowns. If the function of the pulp is to develop the dentine, and if its function practically ceases when the tooth is developed, then it is of little value to the tooth to be crowned. If the pulp is removed and the canal properly filled, the life of the bridge will probably be increased, for the tooth root receives nourishment from two sources, through the pulp canal and through the pericementum. If the source of nourishment through the pulp is removed, it requires increased activity of the pericementum to furnish nourishment.

This increased activity seems to act as a mild stimulus to the pericementum and enables it to withstand the additional work to which it is subjected, when the tooth which it surrounds acts as an abutment for a bridge.

If ill fitting ferrules are not a source of irritation to the gingival border, why should writers on operative dentistry impress upon us the necessity of thoroughly finishing all filling at the gingival border, in order to prevent overhanging margins from irritating this border and cause recurrence of decay. But we have been adjusting crowns for years with greater marginal area, which gives a larger shoulder to irritate the gum. It is really surprising that our failures have been so few. All must admit that the ferrule crown has been responsible for the loss of many teeth, for it is almost impossible to prepare a tooth and construct a ferrule so that it fits the tooth *perfectly*. Too many dentists permit the ferrules to impinge upon the pericementum and this greatly increases the irritation at the gingival margin.

The writer has almost discarded the use of the complete collar for post crowns for incisors and cuspids. The partial collar which gives support to the lingual wall, will prevent fracture of the root. The post plate crown is preferable for biscupids and molars. It is possible to burnish the metal to the face of the root and secure as good adaptation as can be secured for a gold inlay. If the crown is properly constructed, there is no reason why a better joint cannot be made for a post plate crown than for a ferrule crown.

The impossibility of grinding an accurate joint and the lack of continuity of the peripheral margins of crown and root have caused many of the ready made porcelain crowns to fail. While there are many cases where the all-porcelain crown may be ground to accurately fit the face of the root, there are, however, many cases where it is almost impossible to grind a good point and an illy fitting crown is the result, and even though a good joint is obtained, there may be a shoulder formed by the edges of the root extending beyond the crown, which will be a source of irritation at the gingival margin. I believe I can secure a more accurate joint and obtain a more uniform peripheral margin by burnishing metal over the face of the root, then obtaining proper relation between the crown and metal plate, then fusing porcelain in the joint. . If I were to discard porcelain for inlay work, and if I never constructed another porcelain crown or bridge, I would cling to my porcelain outfit for baking joints for all porcelain crowns. If dentists, who are located in towns where it is possible to obtain the electric current, will buy a gasoline furnace and a low-fusing porcelain outfit, then bake the joints of all post crowns, they will do their patients far better service than by trying to grind the joints for difficult cases.

Improper articulation is one of the most common causes for failure of dental bridges. Too many bridges are constructed with good occlusion but poor articulation. The use of the various systems of ready made dies does a great deal to bring about such a condition. The use of the small plain line crown articulator is another cause of poorly articulated bridges. I believe entire impressions of each arch should be taken for the construction of bridges, and the casts made from such impressions should be mounted on an anatomical articulator, thereby giving the operator an opportunity to study the marks of mastication and permitting him to arrange the teeth so that the bridge will have proper ariculation.

Poor judgment in the selection of cases for fixed bridges, and the greed for gain have caused many bridges to fail. The dentist who constructs a fixed bridge from second biscupid or first molar to the cuspid or a bicuspid on the opposite side, with but two abutments, surely needs the money. I should hate to think that any one would attribute the failure of such a bridge to poor judgment, for it would be hard to believe that dentists are so ignorant. There are cases, however, where one may do conscientious work, but use poor judgment in the selection of cases for fixed bridges, so the bridge fails.

Another cause for failures of fixed bridges is the lack of rigidity of the bridge. Many gold porcelain bridges are constructed in such a manner that there is considerable movement between the abutment teeth. This not only causes facings to fracture, but may cause the metal to break. If the frame work of a platino-porcelain bridge gives under the stress, the new porcelain will fracture and the frame work may break. If a bridge yields under the force of occlusion, it will cause an abnormal movement of the roots of the abutment teeth in the alveolar sockets, which will cause inflammation of the pericementum.

Many bridges are failures from an esthetic point of view. A bridge may correctly articulate with the antagonizing teeth, it may have all the requisites of strength, but if it does not harmonize with the natural teeth of the mouth, and give proper expression, it will in a measure be a failure. The regularity of the teeth, the uniformity of color of the facings are causes of incongruity. If the artificial teeth are ground to conform to irregular conditions of the natural teeth, a great deal of the artificial appearance of the bridge may be avoided. The display of gold should always be avoided and if a fixed bridge cannot be constructed so that this requirement can be met, a removable bridge or a partial plate should be constructed.

It is an undisputed fact that too many fixed bridges are constructed, and the sooner we again realize that the partial plate has a place in the replacement of lost teeth, the better it will be for our patients.—*Western Dental Journal.*

STATUS OF THE DENTAL PROFESSION WITH REFERENCE TO ORTHODONTIA.

BY B. FRANK GRAY, D. D. S., COLORADO SPRINGS.

The apathy of so many members of the dental profession with reference to certain matters that ought to be of vital interest to them, is so great, viewing conditions as they exist, that I have been led to venture a brief study in keeping with the subject as above.

In studying orthodontia and its relation to dentistry, the writer believes he understands, fairly well at least, the status of the profession in the matter. Before interesting myself particularly in the correction of malocclusion of the teeth, I feel I was disposed to regard conditions of irregularity of these organs of mastication in about the same way as does the average practitioner of dentistry, when indeed it appeals to them seriously at all. Dentists are too prone, in their anxiety to preserve the life and usefulness of the teeth, to overlook, or at best temporize with these deformities.

True enough, caries of the teeth and other pathological conditions found in the mouth, require careful attention, but why will men pass over serious conditions of malocclusion, with scarcely a comment? That this is quite commonly done, need not be questioned. How many communities are there in which the correction of these conditions, and the possibilities attendant upon the work of the skilled orthodontist, is practically unknown to the laity?

I will grant, however, that one of the great hinderances to this work lies in the fact that the man who conducts a busy practice in dentistry, even if he had the ability to do so, could not meet the heavy demands on his time which the proper treatment of any considerable number of cases of malocclusion would impose. The amount of work entailed, and consequent time consumed, in successfully treating a case of any considerable extent, would be a source of much surprise to those unfamiliar with the work. That the requirements of orthodontia are distinctly different from the requirements of general dental practice, needs no refutation, and obviously the best judges of the truthfulness of this statement are those who have a really practical knowledge of the practice of orthodontia, as well as that of dentistry.

The dearth of men competent to treat the various conditions of malocclusion that constantly present, is still a serious problem to the conscientious dentist, who is interested in the welfare of his patients. Fortunately, in a number of our larger cities are to be found orthodontists—many of them broad-minded men of culture, who are devoting all their time and energy to the study and practice of this specialty. The progress being made in this branch of the profession is truly astonishing.

A convert to any worthy system of practice, whether it relate to medicine, dentistry or otherwise, ought not to be sparing in his commendations of his teacher, so that the writer feels most grateful to Dr. Edward H. Angle, whose unremitting efforts have contributed so largely to the advancement of the science of orthondontia. Indeed, his work is a monument to his tireless energy.

The benefits that accrue to the patient from well directed and skilled treatment of malocclusion, are of greater import than may commonly be supposed. In the order of their importance, we may consider these benefits for a moment.

First: Improved Health. We observe many cases in which the extent of malocclusion is a great barrier to the thorough mastication of food: The result is impaired digestion and assimilation, with the ensuing systemic disorders and lowered vitality. In the case of one patient, in the care of the writer, the teeth had but a single point of contact; there was no articulation, not even to mention occlusion. The child had actually been scolded and remonstrated with for insufficiently chewing the food, the parents failing to realize that it was a physical impossibility for the boy to masticate. Under treatment the case is progressing toward a favorable result, the normal occlusion of the teeth being now assured, and after only ten weeks' treatment the patient can use his masticatory apparatus far better than ever before.

Not only is the health impaired because of inability to masticate the food, but in the types of malocclusion associated with rhinological difficulties, where mouth breathing may be a factor in the case, the physical well-being of the patient suffers from the perverted respiratory function. While the rhinologist's services are necessary in such cases, for the removal of nasal obstructions, etc., his work must of necessity be followed by that of the orthodontist, as in some cases the mouth breathing will persist so long as the malocclusion of the teeth is of such a character as to prevent the normal closure of the lips.

Second: Beauty or Comeliness of the Face. The deformity of the face resulting from misplaced teeth is truly pitiable to behold, and many there are who suffer the humiliation which is natural to those of a sensitive temperament.

How important it is that men who observe the varying disarrangements of the dental organs, and have to do with their correction, should appreciate the fact that nature was wise enough to give her children just the requisite number of teeth—barring supernumeraries—to meet the best requirements of facial outline, as well as provide, in the best possible manner, for the requirements of mastication! Faces already distorted by irregular teeth, deserve better treatment than has too frequently been accorded them by well-intentioned men who have been too often sadly misguided in their efforts. The normal occlusion of the teeth presupposes the full complement of teeth, so let us not sacrifice any one of them hoping thereby to facilitate our efforts in treatment. The outcome, at best, will be a most questionable one, and there is little credit due the man who temporides in such matters.

Third: Inhibition of Caries, and Improved Prophylactic Conditions of the Mouth. The conscientious dentist not only aims to restore to normal contour and use, teeth that have suffered the ravages of dental caries, but his efforts are directed toward securing as great a measure of future immunity from dental decay as possible. Irregularly arranged teeth are certainly more apt to be attacked by caries than are those in normal occlusion. The reason is obvious. Nor are malposed teeth so thoroughly compatible with an hygienic condition of the mouth as are normally placed teeth—also for reasons that are evident.

The above facts cover, very briefly, some of the most important reasons why maloccluded teeth ought to be restored to their normal positions in the arch. The average individual, who is in possession of normal health and free from deformity, ordinarily has enough to contend with in this world. If he suffers from ill health, or deformity of face, his existence is apt to be embittered.

The complaint is often heard, that the expense of correcting malocclusion of the teeth precludes the possibility of patients who are in meager circumstances, availing themselves of the services of the orthodontist. It is unfortunate that this is too often true. The work is so exacting upon the time and perservance of the operator, that he cannot well afford to undertake complicated cases without a fair compensation. Possibly, however, the parents of the prospective patient gain the impression that the work may be regarded more in the nature of a luxury that that of a necessity. So long as that conception of it is had many cases will go without attention that might gladly arrange for treatment if the real importance of it were sufficiently understood.

Many people of even moderate means are not very appreciative of things purely aesthetic: the thoroughly practical is all that appeals to them. They are too often so unthinking, or short-sighted, that they fail to weigh such matters broadly and grasp their full importance. When they can be brought to do so, they are more disposed to feel that the payment of a moderate fee for the required services can be arranged in some way.

After all, the whole question resolves itself, to a great extent, into one of education. First, let us have a true appreciation on the part of the dentist, and in so far as he is conscientious he will do his part toward enlightening the public. Once the latter comprehends the necessity of proper treatment of malocclusion of the teeth, it will certainly avail itself of the beneficent results which follow.—*Dental Review.*

SUGGESTIONS

VUL-CARBO POINTS FOR FINISHING FILLINGS.

W. O. Talbot, Gulfport, Miss.

The vul-carbo points carried in an engine porte polisher are valuable in cutting down the surplus material of metal fillings on occlusal and other accessible surfaces. These should be kept wet while using.—*Dental Headlight.*

PLUG-FINISHING BURS.

W. O. Talbot, Gulfport, Miss.

Plug-finishing burs are valuable in some cases on occlusal fillings to cut them down, but they should be used with care. In fact, hardly any case presents that cannot be done better with a discoid trimmer or with a stone.—*Dental Headlight.*

THE BEST CLASP FOR PARTIAL PLATE.

L. P. Haskell, Chicago.

The best clasp for a partial lower vulcanite plate is made of 18-gauge gold wire, doubled, but not close, fitted to the tooth on the buccal and lingual side, and the ends turned at right angles and vulcanized to the plate.—*Dentist's Magazine.*

ARRANGING A LOWER SET OF TEETH.

L. P. Haskell, Chicago.

In arranging a lower set commence with the second bicuspids, as four-fifths of the lower anterior teeth are too wide for the uppers, as it is essential that the bicuspids properly occlude, then use teeth just wide enough for the space between the bicuspids.—*Dentist's Magazine.*

TESTING AN ELECTRIC FURNACE.

F. E. Roach, Chicago.

Every user of an electric furnace should provide for testing his muffle in case of failure to operate. This is easily done by taking a few feet of the ordinary electric light wire connected with a plug at one end and a small copper or brass point on each of the other ends. One of these wires should be cut and a lamp put in. The lamp will light up when points are brought into contact with the two terminal wires in the muffle if the wire is not burned out or broken. Some such arrangement will also prove to be a very great help in locating a break in case of repair. Where the wire has burned out there will usually appear a spot, but a break will not show and a tester is indispensable. In the majority of cases the burn will occur within three or four inches of the negative end of the wire, due to the excessive heating of the wire at that point. —*Dental Review.*

SETTING OF INLAY.

J. A. Sherwood, Buffalo, N. Y.

And now a few words about the setting of inlays. Many inlays are spoiled in cementing them into place. The reason for this is in the opaque cement, which, instead of transmitting light, reflects it. A similar condition results when a metal backing is placed on a thin porcelain facing. The inlay when set appears darker, and does not match the tooth. Thus it is often better if the inlay is somewhat lighter than the tooth before cementation.

For some months I have been using for setting inlays Ascher's artificial enamel, and so far it has proved more than satisfactory. It is translucent, and does not reflect the light, so that the inlay when set with it remains the color it was before setting. Then again there is no apparent line of demarkation between the inlay and the tooth. It apparently has good adhesive quality, and —for the setting of inlays at least—it seems far superior to cement. It is placed on the market in six colors, and, like cement for inlay work, should be mixed with an ivory or bone spatula, so as to prevent discoloration of the material.—*Dental Cosmos.*

TO HOLD BROACH SECURELY.

J. A. Wells, Shawnee, Okla.

If the broach-holder does not hold the broach securely, take the broach to the crown anvil and give it a few taps with a hammer to flatten or square the end.—*Western Dental Journal.*

THE USE OF ABRASIVE DISKS.

W. O. Talbott, Gulfport, Miss.

The carborundum, sandpaper, cuttlefish, and rouge disks, in their different sizes and grades, are used on a mandrel for cutting down and finishing metal fillings, but care should be used to prevent them from overheating the fillings. The sandpaper and the cuttlefish disks are also valuable in finishing cement and porcelain inlay fillings. However, a clean Arkansas stone is better for finishing an inlay. Linen strips covered with the same polishing material as the disks are most valuable in finishing the surface of approximal gold, amalgam, cement, and inlay fillings, but rouge and carborundum should not be used on the last two.—*Dental Headlight.*

CEMENTING INLAYS.

Oliver Martin, D. D. S., Ottawa, Ont.

This is a very important part of the work, and I must confess it is where I find the greatest difficulty. I am generally so anxious to know if the filling is in place all right that I cannot leave it alone when it is all right. My experience has taught me the following: always use the same make and color of cement if possible. I prefer Harvard light-yellow to any other. Mix it thin enough and get it in as quickly as possible. Do not put in too much, wipe off the surplus immediately with a piece of spunk so that you can see where you are at, then apply pressure and maintain it till the cement crystallizes. In some cavities you will simply need to hold the filling in place for that time, but in approximate cavities a piece of nursing bottle tubing sprung into place between the teeth does it to perfection.—*Dominion Dental Journal.*

REPAIR OF BRIDGE FACINGS.

A. W. Thornton, Chatham, Ont.

Usually when a porcelain is fractured it is on the anterio crown; indeed, always the pins with the head on are left in the soldered back. Now, in order to put on a new porcelain, we have always ground off that pin, made a hole for the reception of the new pins, and in some way attached those new pins. Now, instead of doing that, leave the pins right in the soldered backing and cut the pins out of the facing, which is a very easy matte. Simply take a little piece of thin copper, make a little tube large enough to slip over the head of the pin; with either emery powder or some powder that is furnished with those carbo-copper discs use a little glycerine, and by rotating that little disc around th pin you can cut the pin right out. Then simply cement the facing on there, leaving the pins. In that way you have not weakened the backing in any way, and you have facilitated the operation verv much.—*Dominion Dental Journal.*

BENDING PINS.

Pliers should never be used to bend pins on a backed tooth. I broke many teeth by using pliers, until I adopted my present method. With a small dividing file I cut the whole length of the pin half-way through, from the backing to the tip, in the direction in which I intend to bend; then, taking an ordinary file, I easily press the pins flat upon the metal; this prevents undue strain, and involves less finishing when the soldering is completed. I always avoid riveting, except in cases of very close bite, where thickness is a consideration. My reason for objecting to riveting is that one cannot judge to a nicety how far to go. Too much force may be put upon one pin, and this is very likely to cause unequal expansion during firing, with the possibility of cracks.

In fitting teeth that have to be soldered to a plate, it is much the best way to fit them before backing; this enables one to be economical, and to obtain the required length of metal for good contact; moreover, it lessens the risk of drawing a tooth from the investment by solder.

Having prepared and fitted the teeth, they should be attached to the plate with white wax—Messrs. Ash, Sons & Co.'s Model

Cement. This readily melts when boiling water is poured on it, and is so thoroughly scalded out that the work is left quite clean, which cannot be said of the home-made product, termed "sticky wax," which consists of resin and wax.—*W. C. K., Quarterly Circular.*

CAUSES OF FAILURE IN BRIDGE-WORK.

L. D. Loash, Joplin, Mo.

The causes of bridge-work failing to give permanent results can be briefly summed up as follows:

First. The anchorage was an open-faced crown or a banded Richmond, causing gum recession with the dissolving out of the cement, allowing decay to weaken the abutments. When under stress the root will fracture or the tooth break off, and the bridge is lost.

Second. Not properly re-enforcing porcelain with gold on cutting edge, which is chipped off under stress of mastication.

Third. Hollow gold dummies giving way, the cause being the drawing of the solder in making dummy or in final soldering.

Fourth. Where one dummy is supported with only one anchorage; if the occlusion is normal the leverage is sufficient to set up an inflammation, resulting finally in the death of the pulp and necessitating its removal.

In conclusion I would say, give the public the class of work that will be permanent, replacing the organs of mastication, restoring the facial contour, improving the speech and esthetic appearance, thereby removing erroneous ideas and insuring the professional and public indorsement of this important branch of our work.—*Dental Era.*

A METHOD OF MAKING SOLDERED GOLD CROWNS FROM ONE PIECE OF METAL.

H. M. Schooley, Washington..

After securing the root-measurement I cut the gold to the required length, so that when it is turned over and soldered the band will exactly fit the root. Then I take a pair of shears, and on one end of the band cut about twenty slits. Then I force these little sections over the end of the form which I have made to resemble somewhat the end of the tooth that is to be crowned. Take this band, which now roughly resembles a crown, place it on the root in the mouth, and trim approximately to the right length so that when the patient closes the mouth the occluding tooth will force itself into the soft end constituted by the sections lying one against the other. This gives a perfect articulation in most cases, and, as the slits readily yield, they can be bent until a perfect articulation is secured. The flux is then put on the outside of the articulating end of the crown and the solder on the inside; the crown is held over the flame so that when the solder melts a good backing of solder is obtained, which will permit of the crown being ground to suit the articulation. I claim for this method simply that we can secure a good fit of the root with the band, because we can see what we are doing. I also claim that by allowing the patient to force the teeth into this soft end we get a better occlusion than when the crown is made in the ordinary way. This is simply a little novelty that has proved quite helpful to me.—*Dental Cosmos.*

PREPARATION OF CAVITY WALLS.

J. A. Sherwood, Buffalo, N. Y

One of the most important rules which must be followed in dealing with approximal cavities is—Plenty of room for the removal of the matrix and the insertion of the inlay. I speak of the approximal cavity here because it presents more difficulty and more detail to be considered than does the simple labial cavity. To secure sufficient space, apart from any previous natural separation of the teeth, the cutting away of the enamel wall of either the lingual or labial plate is absolutely essential. It is much better to have a good-fitting inlay from a well-formed matrix than a poorly fitted inlay from a distorted matrix, when you may produce the former by cutting away the cavity wall instead of trying to save it. Again, in this connection, always determine upon the removal of the matrix in a certain direction, and cut the cavity walls so that the removal of the matrix in that direction will be facilitated. In these two points make the removal of the matrix as easy as possible.—*Dental Cosmos.*

IMPRESSION AND DIES FOR ROOT CAP FOR CROWNS.

C. C. Allen, Kansas City, Mo.

In order to make a metal cap or matrix, necessary in building a porcelain crown for a root, it is usual to take an impression in gutta-percha and from the gutta-percha impression, which is necessarily more or less imperfect, make a die of Richmond or other fusible metal. The die when made is inaccurate and clumsy. The whole method is slow and unsatisfactory.

After the top of the root is prepared, take a small stick of wood, pine preferred, about one-half inch square, whittle this down until it approximately fits the root to be crowned and slides easily between the abutting teeth, if there are any. Then drop sealing wax upon the pine stick, let the wax cool until it will no longer burn, but is still soft enough to take an impression. Press firmly to place and hold till cold. You then have an excellent impression of the root of the tooth in intaglio, but, of course, in addition to that objection, a pine block does not make a good anvil. Now, take your impression and oil it, then take the anvil block of your rubber swager, melt the sealing wax upon it and press the pine block quickly and firmly to place, using no twisting or sliding motion. After cooling, these two sealing wax surfaces will separate, leaving the perfect die wanted and upon an anvil ready for the swager. These operations can be completed in much less time than I have taken to tell it and are more accurate than any other. The metal cap may then be returned to the tooth for finishing.—*Dental Brief.*

CROWNS.

W. H. Reaben, McComb, Miss.

Much is being said lately against crowns with bands for anterior teeth, and many are arriving at the conclusion that bands are unsanitary, but they never say anything against posterior gold crowns, which necessarily encircle the root at the gingival margin and pass underneath the free margin of the gum. If the band has been well fitted, we rarely find an unhealthy condition existing around a posterior gold crown, yet the principle is the same as that of a banded anterior root. Where we find the gums unhealthy around the anterior roots that have been banded, the reason is found in the fact that the roots of those teeth are more difficult to fit than those of the posterior teeth, and the latter will tolerate a misfit better than the former. The fault does not lie with the bands, but with the imperfect fitting and the careless preparation of the root.

I deem it unnecessary, however, to use bands when crowning single teeth. The bands will not prevent a root from splitting and a perfect joint may be made between the crown and root as follows: After the root has been prepared, and the crown ground to fit as well as possible, soften a piece of gutta-percha stopping, place over the end of crown with pin in position and press firmly to place on the root. When the stopping is hard, remove the crown and carefully trim the excess gutta-percha even with the outside circumference of the crown. Plate gutta-percha should not be used, as it drags. The crown is now cemented to place, and it will be found that the cement will be a long time dissolving out. This makes a beautiful, natural-looking crown.

I will say concerning the crowns now on the market that most of them will give satisfaction, if discrimination against certain pins or pivots is made in certain cases. Where there is to be much strain upon the pin, as where we find a long over-bite, the pure platinum pin should not be used.—*Dental Review.*

DISADVANTAGES OF SHELL AND BAND CROWNS.

S. H. Guilford, Philadelphia.

The unfortunate consequences following the use of shell and band crowns are due, first, to the inadequate dressing and shaping of the natural crown, thus necessitating the use of a metal shell, which cannot fit at the cervical margin; and second, the forcing of the edge of the shell so far under the free margin of the gum as to impinge upon the pericementum and adjacent soft tissues. In the first case, the margin of the shell, standing away from the neck of the tooth at all points, furnishes a shelf for the accumulation of food debris and stagnant secretions, which inevitably results in the girdling of the tooth by caries; and in the second case, the soft tissues impinged upon become irritated and recede, or an inflammation is set up which very frequently leads to the establishment of a pyorrheal condition. In either case the tooth is eventually lost.

All that has here been said in regard to the ill-fitting or ill-placing of the margin of the shell crown applies equally to any band encircling the neck of the tooth, no matter what kind of a crown be attached to it. It is the observation of the ill results of the misfit band that has led to the present outcry against the use of bands in any form. Some recent writers even go so far as to declare that any band extending under the gum margin, no matter how well fitted and adapted, is in all cases a source of irritation, and therefore objectionable. Probably this is a swinging of the pendulum too far in the opposite direction, but those who now object to the use of bands certainly have some justification for their views, when we consider the immense amount of harm that has resulted from their improper use.—*Stomatologist.*

A SOLDERED GOLD CROWN FROM ONE PIECE OF METAL.

H. M. Schooley, Washington.

After securing the root-measurement, I cut the gold to the required length, so that when it is turned over and soldered, the band will exactly fit the root. Then I take a pair of shears, and on one end of the band cut about twenty slits. Then I force these little sections over the end of the form which I have made to resemble somewhat the end of the tooth that is to be crowned. Take this band, which now roughly resembles a crown, place it on the root in the mouth, and trim approximately to the right length so that when the patient closes the mouth the occluding tooth will force itself into the soft end constituted by the sections lying one against the other. This gives a perfect articulation in most cases, and, as the slits readily yield, they can be bent until a perfect articulation is secured. The flux is then put on the outside of the articulating end of the crown and the solder on the inside; the crown is held over the flame so that when the solder melts a good backing of solder is obtained, which will permit of the crown being ground to suit the articulation. I claim for this method simply that we can secure a good fit of the root with the band, because we can see what we are doing. I also claim that by allowing the patient to force the teeth into this soft end we get a better occlusion than when the crown is made in the ordinary way. This is simply a little novelty that has proved quite helpful to me.—*Dental Cosmos.*

NEW PUBLICATIONS

Atlas and Text Book of Dentistry, Including Diseases of the Mouth, by Gustav Preiswerk, M. D., Ph. D., of the University of Basel. Authorized translation from the German. Edited by George W. Warren, A. M., M. D., D. D. S., Professor of Principles and Practice of Operative Dentistry. Pennsylvania College of Dental Surgery. Philadelphia and London: W. B. Saunders' Co., Pub., 1906. Cloth, $3.50 net.

This book is one of a number comprising Saunders' Hand Atlas Series, and is a valuable work. It contains 350 pages of text, 152 text illustrations and 44 lithographic plates in colors. And here we might add that we have never seen in any book engravings so perfectly representing the existing conditions or so marvelously well executed and printed. The illustrations alone are worth the price of the book, and yet they are but aids to a clear presentation and understanding of the excellent text.

That the reader may better comprehend the scope of the work, we will give an outline of its contents. First is presented an interesting chapter on the history of dentistry from the earliest times to the coming of Fauchard, who is everywhere honored as the father of modern dentistry. Next, the subject of comparative anatomy of the teeth is considered. Then the anatomy of the oral cavity externally, the oral vestibule, the oral cavity, the upper jaw, the lower jaw, the blood vessels and nerves of the teeth, and corrosion, anatomy of the teeth and the pneumatic cavities of the face. Then special anatomy of the teeth, of the permanent teeth, the deciduous teeth and the articulation of the teeth Next the histology of the mucous membrane of the mouth, and hard and soft dental tissues. In the chapter of Physiology we find the development of teeth, development of the root, calcification of the deciduous teeth, eruption of the deciduous teeth, disturbances accompanying eruption of the teeth, the resorption of the deciduous teeth, calcification of the permanent teeth, eruption of the permanent teeth, location of the permanent crowns before the absorption of the deciduous teeth roots. Next is a chapter on Bacteriology, then comes Diseases of the Mouth, Tumors of the Oral Cavity, Fractures of Lower and Upper Jaws, Dislocation of Lower Jaw, Empyemia of the Antrium of Highmore, Acquired and Congenital Defects of the Face, Anomalies of the Teeth and Jaws, Dental Deposits, Congenital Defects of the Hard Tooth Substances, Acquired Defects of the Hard Tooth Substances, Treatment of Defects of the teeth, Technic of Filling Teeth, Diseases of the Pulp, Pathologic and Anatomic Remarks Concerning Diseases of the Pulp, Diagnosis of Pulp Diseases, Treatment of Diseases of the Pulp, Diseases of the Root-Membrane, Extraction of Teeth, Complications During and After Extraction, Anesthesia, Preparation of Mouth for Artificial Teeth.

The subject matter is treated in a general way, as might be expected from the many subjects presented.

The editor states that "the author is one of the chief exponents of the modern trend of dental thought in Germany, and, while we may not entirely agree with all his views as here expressed, the book will be much appreciated as a fair presentation of dental practice in that country."

The translation into English has been done admirably, and Dr. Warren deserves the thanks of the profession for giving them the benefit of this excellent German work.

The text is printed on extra quality paper and is a work of art. The book merits a large sale.

Lecture Notes on Chemistry for Dental Students, by H. Carlton Smith, Ph. G., Austin, Teaching Fellow in Dental Chemistry and Lecturer on Physiological Chemistry at Harvard University Dental School. New York: John Wiley & Sons, Pub., 1906. Price, cloth, $2.50.

The author states that "the arrangement of this book follows rather closely the lecture course in dental chemistry as given by him at the Harvard Dental School. It has been the aim of these lectures to give the student, as concisely as possible, such portions of the various branches of chemistry as are most likely to be of value in practical work.

Simplicity of manipulation has in some cases been considered of greater practical value than extreme accuracy, especially in the chapter on Quantitative Analysis, the volumetric processes being given as a rule, rather than the more exact but more difficult gravimetric methods.

Part I is devoted to Qualitative Analysis. In Sec. 1 the metals receive attention together with analysis of Groups 1 to VI and outline schemes for analysis. In Sec. II is given the analytical test for the acids. In Sec. III we find analysis in the dry way and blow-pipe tests.

Part II is devoted to Dental Metallurgy. The different sections treat of the metals, alloys, amalgams, dental cement, solders, etc.

Part III, Volumetric Analysis, Standard Solutions, Quantitative Analysis of Dental Alloys.

Part IV, Microchemical Analysis, Local Anesthetics, Teeth, and Tartar.

Part V, Organic Chemistry. This chapter was introduced to furnish the student an understanding of this branch of chemical science that he may be enabled to better comprehend the physiological chemistry which follows:

Part VI, Physiological Chemistry.

Part VII, Digestion. Under this head is considered, saliva, properties and constituents, analysis of saliva, crystals from dialyzed saliva, gastric digestion, pancreatic digestion, and bile.

Part VIII is devoted to Urine, its normal and abnormal constituents, etc.

The book contains 260 pages of text, neatly printed and bound, and is apparently an excellent work on this subject, written in a concise yet comprehensive manner.

PAMPHLETS RECEIVED.

Transactions of the Georgia State Dental Society, 1906.

Facial and Oral Deformities, by Dr. Calvin S. Case, Chicago

The Question of Extraction in Orthodontia, by Dr. Calvin S. Case, Chicago.

Sixty-two Years of Dentistry, by Dr. L. P. Haskell, Chicago.

Criticisms, Unjust, Unliberal, and Unprofessional, by H. H. Johnson, Macon, Ga.

SOCIETY

DR. C. R. TAYLOR.

Resolutions of Respect Passed in His Memory by the National Association of Dental Examiners, in Session in Atlanta, Ga., Sept. 17, 1906.

Whereas, Having just learned by telegram of the departure from this life of our friend and brother of this association, Dr. C. R. Taylor, a member of the Board of Dental Examiners of the State of Illinois, and

Whereas, Dr. Taylor had shown himself to be an honest and upright gentleman, and an earnest worker in this association for the advancement of higher requirements upon the part of those seeking entrance to the dental profession, and being himself an example of uprightness, probity, conscientiousness, integrity, industry, intelligence and gentility, we, the members of this associaton, keenly feel the loss we have sustained by his removal to that bourne from which no traveler returns, and mingle our tears with those of his surviving wife and daughter, while we endeavor to uncomplainingly submit to the inevitable forces of nature, which separate us from those we love; and

Whereas, We shall forever in this life miss the smile of his genial countenance, and the benediction of his personal presence, we shall always reap the benefits of the influence of the purity of his thought and the spirit of righteousness which permeated his whole character and illuminated his every action.

Therefore, be it resolved, That this resolution be spread upon the minutes of this association, and that an engrossed copy of the same be presented to his surviving family.

CHAS. P. PRUYN,
J. A. HALL,
F. A. SHOTWELL, Committee.

KENTUCKY STATE DENTAL ASSOCIATION.

The next annual meeting of the Kentucky State Dental Association will convene at Louisville, Ky., May 20, 21 and 22, 1907. We anticipate a most interesting and profitable meeting. A cordial invitation is extended to the profession. W. M. Randall, Secretary.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Dental Examiners will hold their twenty-fifth annual meeting in Minneapolis, Minn., beginning Friday, July 26th, and continue through the 27th and 29th.

Accommodations have been secured at the leading hotel of Minneapolis, The West hotel. Rates as follows: Room without bath, $1 per day for each person occupying the room; room with bath, $2 per day for one person, and $1.50 per day for each additional person in room. Hotel on European plan. Any room in the hotel capable of accommodating two people. Telephone in each room; hot and cold water. A large attendance of delegates is earnestly requested. Committee on colleges, joint conference committee, tabulation of examining board's reports, the committee for promoting a system of credits and uniformity of examinations will all give exceedingly interesting reports valuable to all the members of the association.

Railroad rates will be announced later.

For information apply to Charles A. Meeker, D. D. S., Secretary and Treasurer, 29 Fulton St., Newark, N. J.

DR. CHARLES C. CHITTENDEN.

Resolutions of Respect Passed in His Memory by the National Association of Dental Examiners, in Session in Atlanta, Ga., Sept. 14, 1906.

Whereas, Dr. Charles C. Chittenden, late of Madison, Wis., was for many years a valued and prominent member of this association, having in the course of his connection therewith graced the meetings of this society by acting as its president, and having for many years occupied, with marked distinction, the position of chairman of the committee on colleges, where he rendered services of inestimable value, not only to this association, but to the whole profession of dentistry at large, and

Whereas, Dr. Chittenden departed this life in the month of December, 1905, and

Whereas, This association, in regular convention assembled, unanimously adopted a motion appointing a committee to prepare suitable resolutions touching this sad and lamentable event, therefore your committee recommends that it be

Resolved, That in the life of Dr. Chittenden he exemplified all the graces and virtues of an upright Christian gentleman, the fidelity and affection of a loving brother in the truest and broadest sense of these words, the patriotism and public spirit of a true and loyal American citizen; and, through the inherent force of his firm and manly character, his courteous and kindly nature and his sympathetic and affectionate disposition, he enjoyed the confidence, respect and esteem of a large and appreciative clientele, and

Resolved, That in his death his sorrowing family have lost a devoted, unselfish and affectionate member, at whose untimely demise we mingle our tears with theirs, and this society has suffered an irreparable loss in that it has been deprived of the benefit of his untiring and unremitting interest and work in all that made for the uplifting of the association, the improvement and advancement of the science of dentistry and for higher ideals and more permanent results in dental education; and that each member of this society who enjoyed the privilege of a personal acquaintance with him has lost the benefit flowing from the beauty of his character and the inspiration to better and higher things, reflected in his gracious and noble personality; and the world of dentistry has lost one whose whole life was a patient and constant struggle towards higher attainments, through more thorough, honest and conscientious methods of dental education; and the entire community has suffered a loss which it is hard to believe can ever be filled; and

Resolved, That these resolutions and the discussion thereon be spread in full upon the minutes of this meeting and a copy thereof be sent by the secretary to the bereaved family.

(Signed.) J. A. HALL,
CHARLES P. PRUYN,
F. A. SHOTWELL.

AFTERMATH

Will Retire From Practice.—Dr. George Shollenberger, a dentist of Hamburg, Pa., will soon retire from business.

Reading (Pa.) Dental Society Officers.—H. L. Cleaver, president; O. J. Specker, vice-president; G. S. Schlegel, secretary; J. T. Bair, treasurer.

Destructive Fire in Dental Office.—The Dental office of Dr. J. B. Stewart, of Hamilton, O., was almost completely gutted by fire, December 21. Loss, $500.

Dentists' Hosts at Banquet.—The Chicago dentists were hosts at a banquet given December 28 to the 100 visiting members of the National Institute of Dental Pedagogics.

Vulcanizer Explodes.—The dental office of Dr. J. E. Fitzgerald, of Chester, Pa., was damaged, December 4, by the explosion of a vulcanizer. The loss will be about $200.

The Dentist's Luck.—Dr. F. W. Bell, of Paris, Ill., while eating oyster soup recently, found a pearl that would have been worth $50 had he discovered it before it had been spoiled by cooking.

Appointed on Dental Board.—Governor Sarles of North Dakota has appointed Dr. Frank W. Chandler, of Valley City, N. D., to fill a vacancy on the Dental Board of Examiners of North Dakota.

Dentist Sweetens the Lives of Poor Children.—W. F. Pace, a dentist of Reading, Pa., distributed 1,800 one-half-pound boxes of candy to sweeten the existence of the poor children of that city on Christmas day.

Dentist Suffers Loss by Fire.—A fire of unknown origin caused considerable damage to the dental offices of Dr. C. J. Kitchen, of Escanaba, Mich., December 7. His loss is estimated at $1,200, partially covered by insurance.

Southeastern Iowa Dental Association.—Officers elected as follows: J. B. Monfort, Fairfield, Ia., president; J. T. Martin, Muscatine, vice-president; G. W. Slingluff, Burlington, secretary; W. E. Creath, Ottumwa, treasurer.

Fox River Dental Association of Illinois.—The following officers were elected: President, Dr. C. T. Dahlin, Elgin; vice-president, Dr. Earl Robinson, Aurora; secretary and treasurer, Dr. C. A. Petterson, Geneseo, Ill.

Dr. Baird Reappointed Dental Examiner.—Dr. F. G. Baird has been reappointed a member of the State Board of Dental Examiners of the state of California by Governor Pardee. This will be Dr. Baird's third term on the board.

Dentist Will Engage in Fruit Raising.—Dr. Elwyn Butts, the dentist of Goshen, Ind., after spending some time in Florida, has decided to engage in fruit raising in that state. He will sell his dental office and practice in Goshen, and move south in January.

District of Columbia Dental Society.—The newly-elected officers were installed, as follows: President, Dr. George W. Boynton; vice-president, Dr. Bruce L. Taylor; secretary, Dr. G. Frank Simpson; treasurer, Dr. M. F. Finley, and librarian, Dr. H. C. Thompson.

Dentist Commits Suicide.—Dr. H. L. Agard, aged 55 years, a prominent dentist of East Aurora, N. Y., suicided, December 27, by inhaling gas from a gas jet. He was found unconscious by a mail carrier who summoned Dr. Hannahan, who failed in restoring him.

San Francisco Dental Society.—At the regular meeting of the San Francisco Dental Society the following named officers were elected for the ensuing year: President, Dr. H. A. Fredrick; vice-president, Dr. L. V. Levenger; recording secretary, Dr. L. C. Heller; financial secretary, Dr. F. J. Lane; treasurer, Dr. W. A. L. Knowles; librarian, Dr. M. A. Greenlaw.

Missouri State Board of Dental Examiners.—At the last meeting of the Missouri State Board of Dental Examiners the following officers were elected: President, C. B. Coleman, Poplar Bluffs; vice-president, H. B. Purl, Kirksville; secretary-treasurer, S. C. A. Ruby, Clinton. Delegates of the National Association of Dental Examiners, R. D. McIntosh, Monette; S. C. A. Ruby, Clinton.

Dr. Evans' Estate Nears Settlement.—Mayor Weaver announced at the regular monthly meeting of his cabinet that there is a prospect of an immediate settlement of the litigation over the estate of Dr. Thomas W. Evans, the famous American dentist, who died in Paris nine years ago. Some of the heirs have contested the will, and the executors residing in Paris have, on technical grounds, from time to time, refused to turn over to the city of Philadelphia the residuary estate, amounting to about $2,500,000, which Dr. Evans devised for the erection and maintenance of a dental institute and museum at Fortieth and Spruce streets.

National Institute of Dental Pedagogics.—The following officers were elected: President, Dr. J. H. Kennedy, of St. Louis; vice-president, Dr. W. Earl Wilmott, of Toronto; secretary-treasurer, Dr. John W. Loesch, of St. Louis. Executive committee—Dr. Don M. Gallie, Chicago; Dr. J. Q. Byram, Indianapolis; Dr. L. P. Bethel, Columbus, and Dr. Ellison Hillyer, New York.

Black Mills District Dental Society.—At the first tri-annual meeting of the Black Hills District Dental Society, held in Deadwood, S. D., December 29, 1906, the following officers were elected: President, F. M. Gantz, Deadwood; vice-president, J. L. Benson Spearfish; secretary, Aris L. Revell Lead; treasurer, G. E. Le Mar, Rapid City. Fourteen members signed the constitution.

Dr. R. D. McBride Honored.—The prince of Reuss has conferred the title "Hofrat" upon Dr. Robert D. McBride, Dresden, Germany, successor to Dr. N. S. Jenkins. This nomination, which is one of the highest honorary titles conferred on professional men in Germany, and which signifies "Counsellor to the Court," was given as an expression of appreciation for services rendered to a member of the princely family

Dental Surgeons for the Army Are Difficult to Obtain.—The examination of candidates recently held at West Point resulted in the reporting before the examining board of only four of those who had been authorized to appear. Of these four, three were physically disqualified and one withdrew from the examination. Nothing has been heard of the examination held at the same time in San Francisco.—Journal, American Medical Association.

Sensational Charges Against Arizona Dental Board.—Charges of a sensational nature have been preferred against the Territorial Board of Dental Examiners as a result of the examination recently held before the board for the benefit of those desiring to secure licenses to practice in Arizona. The action against the board is led by H. H. Wilson, a practicing dentist of Phoenix, who has addressed a letter to Governor Kibbey, in which he sets forth the charges against the board, and requests that an investigation be made.—Friczon (Ariz.) Citizen.

Society Meeting and Banquet.—The St. Louis Society of Dental Science meeting, held January 15th, was a notable one. Dr. G. V. Black, Chicago, gave a stereopticon lecture on operative dentistry. This was followed by a banquet in honor of Dr. Black, whose untiring efforts and valuable scientific contributions have done so much for dentistry. Among those assigned for toasts were: Dr. G. V. Black, Chicago; Rev. W. C. Bitting, St. Louis; Dr. J. D. Patterson, Kansas City; Dr. G. E. Hunt, Indianapolis; Dr. F. O. Hetrick, Ottawa, Kan., Dr. J. W. Hull, Kansas City, Dr. G. A. Bowman, St. Louis, and E. H. Angle, St. Louis.

Dr. Boak Transferred to Cuba.—Dr. S. D. Boak, who has been stationed at the Columbus, O., barracks as army dental surgeon the past year, left on January 11th to resume his duties in Cuba. Dr. Rex R. Rhodes, of Ft. Sheridan, Ill., will succeed Dr. Boak at Columbus barracks.

Credit to Whom Credit Is Due.—By an oversight credit was not given Dr. C. N. Johnson's operative dentistry, from which drawings were made to illustrate the text in an article read by Dr. C. E. Woodbury before the Nebraska State Dental Society and published in the December number of The Dental Summary. Dr. Woodbury gave Dr. Johnson credit at the meeting, but there being no stenographer there, the credit did not appear in the material as received by the editor. We make this statement, for Dr. Johnson is entitled to due credit, and it is the desire of both Dr. Woodbury and the editor that it be given him.

Robberies.—The dental office of Dr. D. E. Smith, of Davenport, Ia., was entered December 5 and gold plate, solder and platinum taken to the amount of $15.

Dr. A. Dingwell's dental office at Clinton, Ia., was burglarized Thanksgiving evening, the thieves getting away with about $40 worth of gold used for filling teeth.

Dr. E. O. Rear, Des Moines, lost $500 worth of instruments and supplies by burglary, December 31st.

Dr. E. C. Honeywell, Norristown, Pa., was robbed December 31st of a gold watch and chain valued at $100, a diamond scarf pin, $200, and $25 in money. Dr. W. O. West, New Orleans., lost about $60 worth of materials by theft January 4th.

Deaths.—Dr. Wm. I. Wingate, of Somersworth, N. H., December 19, of typhoid fever, aged 40 years. Dr. Norman W. Buege, of Detroit, Mich., died in San Jose, Cal., December 10, of consumption, aged 26 years. Dr. Wm. R. Hall, of Philadelphia, Pa., December 14, of paralysis, aged 84 years. Dr. J. M. Ware, of Atlanta, Ga., December 22. Dr. J. Hall Moore, of Richmond, Va., December 29, aged 75 years. Dr. James L. Clapp, of Chicago, Ill., died in Los Angeles, Cal., December 21. Dr. E. E. Cotton, of Des Moines, Iowa, died in Colorado Springs of consumption, December 11. Dr. W. S. Miller, Winchester, Va., one of the former prominent dentists in the state, died January 6th, aged 79 years. Dr. R. B. Moyers, Jasper, Tenn., died January 6th. Dr. James J. Ford, Dorchester, Mass., died January 3rd, aged 35 years. Dr. Frederick Herrmann, Ann Arbor, Mich., died January 3rd, 28 years of age.

The "New School" and "Old School" of Orthodontia.—The year 1906 has produced several articles dealing with methods of practice according to the "old school" or the "new school," and some of these have been so full of personalities and so violent in expression as to have little or no scientific value. Partisanship in politics is bad enough, but it is absolutely without excuse in scientific matters "New school" and "old school" are partisan terms, and the less use made of them the better, as they serve no purpose except to keep alive personal contentions. It should be remembered that the "new school" of today is the "old school" of tomorrow, and any man or men who feel that their school, 'ology or 'doxy is a finality in any line only make themselves ridiculous as the wheels of progress roll on.—W. J. Brady, in Western Dental Journal.

A Hustling Dentist.—The following letter from Dr. S. F. Gilmore, Princeton, Ind., is self-explanatory: "I notice in the December Summary an item representing me as a man of divers accomplishments, viz., dentist, "plumber" and "undertaker." I don't know that anyone would be particularly interested in knowing the facts of the case. However, I will explain that after practicing dentistry for 25 years, I had, contrary to the usual custom, accumulated some money. With it I assisted in installing a city waterworks system that is among the best in the state; also an electric light plant and central station hot water heating system, and one of the best coal mines in southern Indiana. In order that I might be able to sell water, and that my customers should be properly treated, I controlled the plumbing business, also the heating and lighting installations.

At this time I was conducting a large dental practice. Such strenuous life began to tell on my health, and I found it necessary to abandon some of my interests, and lead a quiet life. With this in view I bought an undertaking establishment, and will, as soon as it is possible to finish up some odds and ends of a 33-year dental practice, confine myself to funeral directing. It has often occurred to me that if the large number of members of the dental profession who live "from hand to mouth" would hustle a little and make some investments in the right direction, the financial rating of the profession would be better."

Regulations of Various Countries Governing the Practice of Dentistry.—The following from the Consular Reports, Washington, D. C., will be of interest to the dental profession: In reply to a Buffalo, N. Y., inquiry, Consul-General A. W. Thackara, of Berlin, states that no examination is necessary for a dentist proposing to practice in Germany. He continues:

Anyone can do so, but no degree obtained from any college or institution outside the German empire is recognized here. Consequently the holder of an American degree ranks simply as a mechanical workman, and is not allowed the use of his title of doctor, or even to use the suffix D. D. S. after his name. He can, however, put on his sign and business card "Graduate of the ———— Dental College." He is called in German a "Zahntechniker," but has no other title.

For the benefit of those contemplating settling in Germany, it may be stated that "practice building" is much less rapid than in America, but the practice, once established, is far more valuable for this very reason and is much more readily sold if one should wish to dispose of it. The expense of living and the cost of conducting a dental practice in Germany are rather underrated in the United States, and many who come, seeking to open a practice, return discouraged to the States after finding the real conditions. Almost the only way for an American to become firmly and quickly established in this country is by entering the office of some well-known practitioner as an assistant. It also might be well to know that, from the very fact that a practice has the commercial value before referred to, in almost all instances of contracts between dentist and assistant, the assistant is not allowed to open an office in the same town or city after the termination of the contract. It is certainly unwise for those contemplating opening an office in Germany to dispose of a fairly good certainty and come over here with as little knowledge of the conditions as many of them do, unless they possess enough capital to afford to do a little compulsory waiting.

Government Approbation.

Vice-Consul J. L. A. Burrell writes from Madgeburg that in the German empire only those dentists receive government approbation who have taken a two years' medical course at a university, as well as a technical course of at least six months with a practicing, approved dentist (Zahnarzt), and who have passed the required state dental examination. As, however, the principal of "freedom of trade" (Gewerbefreiheit) permits anyone, viz., those who have not passed the state examination, practiced dentistry, there are, besides the regular approved "Zahnarzte," a great many so-called "Zahntechnicker," or "laboratory men," who are recruited largely from former assistants of practicing dentists and with whom most of the foreign dentists practicing in Germany are officially classed. The possession of a German title is therefore not necessary, and most of the American dentists practicing in Germany, including some of the most successful, use the term "American dentist" in English, which seems to serve the purpose.

Japan—To Whom Licenses Are Issued.

Ambassador Luke E. Wright, of Tokio, transmits translations of recent ordinances relating to licenses for the practice of medicine and dentistry in Japan. The government will grant licenses for their practice to graduates of foreign medical and dental colleges, or those who have practiced such professions in foreign countries who may satisfy the Japanese government requirements.

Colombia—Good Opening for Dentists.

For the information of those interested, Consul P. P. Demers, of Barranquilla, gives the following list of dental colleges in the United States and Europe whose diplomas are recognized in Colombia, entitling the grantees thereof to practice:

Baltimore College of Dental Surgery, New York College of Dentistry, New York College of Dental and Oral Surgery, Pennsylvania College of Dental Surgery, Philadelphia Dental College, University of Pennsylvania, University of Chicago, Columbia University, Harvard University, University of Michigan, University of Buffalo, Ohio College of Dental Surgery, Louisville College of Dentistry, University of California, Royal Hospital of London, and London School of Dental Surgery, National Dental Hospital and College, University of Liverpool, Victoria Dental Hospital, all the faculties of medicine of the German empire, all the faculties of the republic of France, all the faculties of the kingdom of Spain, and the University of Rome. Mr. Demers continues:

Such diplomas must be presented in Colombia authenticated by the secretary of the commonwealth or state wherever issued, the latter's signature and seal in turn being authenticated by the Colombian diplomatic agent or consul in the respective state. There are no American dentists located in this country, and very few, if any, European dentists, although a good field seems to offer itself to an up-to-date and capable foreign graduate. I would not advise, however, young graduates or practitioners with less than $1,000 in cash, besides their instruments and outfit, to come and locate here, as it might require the greater part of a year to work up a practice. And it would be useless to come without a good knowledge of Spanish. The instruments of a doctor or dentist are admitted free of duty here, provided they are accompanied by a certificate from the Colombian consul at the port of embarkation, stating the facts of the case.

Barranquilla is a city of 50,000, with only 13 dentists practicing therein, one dentist for each 3,846 inhabitants. Bogota, the capital of Colombia, claims the distinction of having the only regularly organized dental college in Central and South America. It was founded by the late Dr. Guillermo Vargas Pandes, and has attained an international reputation. In Chile and the Argentine they have dental clinics in the general hospitals, but no diplomas are issued, only local licenses to practice. In Costa Rica and other republics there are only boards created by the government to hold examinations and pass on the qualifications of the graduates from foreign schools.

REGULAR CONTRIBUTIONS

GOLD INLAYS*

BY THOS. P. HINMAN, D. D. S.

Professor of Orthodontia, Oral Surgery and Porcelain Art, Southern Dental College, Atlanta, Ga.

The inlay principle in dentistry has received a great impetus by the recognition of its worth by many of our most prominent operators. The gold inlay, as a method of filling large cavities, has secured for itself a prominent place in American dentistry. From crude methods of a few years ago, where the operator was handicapped with thick matrix gold and inaccurate methods of securing contour, have evolved the use of thin gold, and still thinner platinum, and accurate methods of obtaining contour, so that the results that are now secured are superior in a great many ways to anything that can be produced by any other known method of filling teeth.

To my mind, the man who has done more to originate accurate methods of producing contour than any one else is Dr. Chas. Alexander, of Charlotte, N. C. It was his beautiful results and accurate methods that attracted my attention in such a manner as to first cause me to attempt this work. In making gold inlays, it is important that the operator has at hand correct methods of cavity formation and a thorough understanding of how to produce a cavity, giving sufficient mechanical anchorage to the finished inlay, and yet allowing the matrix to be easily dislodged after burnishing. This is not a simple matter in some instances, especially where the teeth have small necks and large crowns, and yet, is an absolute essential to the correct formation of the cavity for a gold inlay. In molars and bicuspids the cavity should be flared well bucco-lingually, practicing extension for prevention to its fullest meaning.

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*Paper read before the Ohio State Dental Society, December, 1906.

The anchorage should always be secured on the morsal surface, and the floor or basal wall of the cavity should be cut flat. This is accomplished with ease and facility by the use of a square end fissure bur. All walls should converge slightly toward the center of the tooth, allowing no undercuts. In very deep cavities a partial filling of cement should be used to produce this condition.

It is essential that the operator should possess a good knowledge of the lines of cleavage of enamel, as well as a skillful use of enamel chisels, for by the use of these chisels marginal lines can be more easily produced without undercuts than with the bur or stone. Do not have the cavity margins too sharp, as they are liable to cut the matrix during the process of the formation. In my practice, all cavities are formed under water, the burring being done while an assistant keeps a stream of hot or cold water playing on the bur and tooth. By this method the cavities may be formed more rapidly and with less pain than by attempting to drill the tooth while it is dry. The reasons are obvious.

CHOICE OF MATRIX METAL.

Two thicknesses of gold are used for matrix making—.002 pure gold for small cavities, and .003 for large cavities. After experimenting with various thicknesses of gold, I have found that .003 is the best to use for making the majority of matrices, and would advise beginners especially to use it exclusively. This gold must be milled accurately, for if its surfaces show the roll marks of the mill, it is unfit for use.

ANNEALING THE MATRIX.

The large pieces of the metal should remain unannealed, and only such pieces as are cut for a specific case should be annealed just previous to manipulation.

FORMING THE MATRIX.

Form the matrix while the cavity is wet, using pledgets of wet cotton to force it practically to place. Mallet on this wet cotton with an automatic mallet, using a piece of orange-wood or a plugger. This drives the matrix in approximal adaptation to the cavity. Remove the cotton and mallet directly on the gold, driving it in close adaptation to the walls and margins. Then use the burnisher both round and flat. Tears in the bottom of the matrix may be mended with gold pellets or wads of scrap foil. These should be forced in position while the matrix is still in the cavity. If tears occur on the margin it is wisest to make a new matrix, as no method has come to my knowledge by which such tears may be satisfactorily mended. There is some danger, I believe, in over-burnishing; by this I mean too great a use of the burnisher on the floor and margins of the cavity, but especially on the floor. The reason for this is, that over-burnishing will produce a spring temper to the gold, which causes it to draw away from the margins; 22-k. solder should be used for thickening the matrix and 20-k. for finishing the inlay; 22-k. plate may be used for thickening the matrix instead of 22-k. solder, and 22-k. solder for finishing the inlay, but I find that 20-k. solder works best for this purpose. All matrices should be removed from the mouth after being thickened by the use of the dry-heated modelling compound, and where occlusion is to be restored the patient should be instructed to bite into the compound, thus getting not only an impression of the adjoining teeth, but the ones with which they articulate. The matrix should be dried before the impression is taken, so that the modelling compound will adhere to it sufficiently to withdraw it from the cavity. Chill the modelling compound thoroughly before any attempt is made to remove it, for if the modelling compound is soft during this process, it might cause the matrix to become distorted during its removal.

RESTORING CONTOUR.

Where it is necessary to restore portions of the labial or buccal surfaces, this may be accomplished by building up the lost parts with hard wax, trimming and smoothing it to the exact proportions desired in the finished inlay. These surfaces are covered with annealed pure gold .001 of an inch thick, pressing it to close adaptation with the fingers and a flat burnisher. It is well sometimes to warm the burnisher so as to make the contour gold adhere more readily. Trim off all excess of contour gold before soldering, as leaving these ragged edges causes trouble in finishing the inlay.

The various methods for producing contour will be shown at my clinic; therefore I will not take time to describe them here.

MODEL AND INVESTMENT.

For model and investment purposes I have found nothing superior to Sump.

FINISHING AND CEMENTING.

The approximal surface of the inlays should be carefully polished before cementation and a slight thin marginal lap being left that can be easily removed in polishing. I always use hydraulic cement for setting inlays, as they only require protection from moisture after the first few minutes of cementation.

I use Ames' cements exclusively in this work, as I have secured with them the best results. In the posterior teeth, where the cavities extend considerably below the gum margins, and it is nearly impossible to obtain perfect dryness, I have Ames' oxyphosphate of copper to give excellent results, as it will adhere firmly to such surfaces and harden rapidly under an application of heat. The color, which is jet black, is not here objectionable. I have used the platinum matrix .001 of an inch thick in some of my work, but it tears more easily than gold and is liable to allow the solder to run through the small holes and slits, which are not easily discernable. I make all my inlays solid, just as I do bridgework, and do not believe that the hollow inlay, as advocated by some, to be good practice, for there is a certain amount of uncertainty in finishing down, as you are liable to cut through to the hollow space. In conclusion, I would advocate a conservative use of the gold inlay, especially so to the beginner. Do not be discouraged by failures; the most of these, however, will come from overheating during the soldering, and an attempt on the part of the operator to force the solder to place by the use of a needle flame, thus concentrating the heat at one point, and in all probability melting the matrix.

I want to add a few don'ts:

Don't guess at the thickness of your matrix metal; use a micrometer.

Don't try to fill small cavities with gold inlays.

Don't use dirty borax.

Don't use anything for a flux except clean, freshly creamed borax.

Don't let the solder get through the matrix and on the back of the inlay.

Don't try to force your solder to flow with a small flame.

Don't smother your work with borax.

Don't use low grade solders.

Don't fill your inlays too full.

Don't expect too much of gold inlays and don't be discouraged by failures.

DISCUSSION.

Dr. L. E. Custer, Dayton, Ohio: While it would seem that the gold inlay has followed in the wake of the porcelain inlay, yet I know of one man who has been pounding away at the gold inlay for just as long a time. Dr. W. V.-B. Ames has been harping upon the good qualities of the gold inlay for lo these many years. The technic of the gold inlay is so entirely different from that of the gold filling that few attempted the gold inlay until having become skilled in the porcelain technic, and learning the weak points of porcelain, they took up the gold inlay. We have been using porcelain long enough, now that we can see its shortcomings as well as its good qualities. The inlay has by this time been sufficiently tested to find its place in dental practice. We have learned the principles of cavity preparation for the inlay, we have found out that porcelain cannot be subjected to stress unless it is in bulk, and that thin edges soon break off. But we have at the same time found that the inlay will save teeth and that in large cavities it is an easier operation for the patient than the making of a gold filling. And so today, as the outgrowth of the porcelain inlay we have the gold inlay, a part of dental practice which possesses merit of a high order.

One of the chief advantages of the gold over the porcelain inlay is the fact that the matrix, being left on the inlay, we have at the very outset a more perfect fit of the stopping, and in addition to this, the gold being malleable, may, at the time of setting, be burnished into perfect contact with the enamel margin, thus reducing the cement space to a microscopical line, so that in point of a tooth-saving agent the gold inlay is better than the porcelain. Another point of advantage is in the edge strength of gold over porcelain, whereby even frail walls may be protected rather than cut away.

Dr. Hinman's paper deals almost entirely with the technic of gold inlays. He correctly advocates the extensive use of the chisel in the preparation of the cavity, for in so doing one is more certain of securing walls without undercut. Pure gold may here be used for the matrix, which is easier worked than platinum, yet while platinum may tear when used for a porcelain filling, these openings need not cause anxiety, for porcelain will bridge them over without running through. Just the opposite is true in the making of the metal inlay; capillary attraction draws the melted metal through the breaks in the matrix, and a perfect matrix, or one whose tears have been covered with foil, is an absolute necessity for making a gold inlay.

The doctor advocates the use of modeling compound for supporting and removing the matrix, but I much prefer the sticky wax for the purpose. It is harder, and after a little heating easily drops out of the matrix. This cannot be said of modeling compound. For the investment he recommends Sump. I have for years used finely ground fire clay and plaster with more satisfaction than anything else.

I, with the author, would not advocate the hollow inlay; I object to it because it may be ground through when articulating; besides that, I would object to its use on the ground that its walls, unless thick enough to make the filling practically solid, will admit of spring, and in time a hollow filling would break its attachment.

Inlay filling of both porcelain and gold has become an established method of dental practice, and the advantages and disadvantages of both materials are already showing themselves. We are even now where esthetic considerations are not material, where the conductivity of metal is not a bar to its use, in favor of the gold inlay by reason of its edge strength, its better natural fit in the cavity, and this still further enhanced by the malleability of the metal, which permits of a final burnishing into an actual contact.

H. M. SEMANS, COLUMBUS, OHIO: Dr. Hinman's paper describing his method of gold inlay procedure is a very clear and concise one; here are many points which could be followed by many operators tending towards better and more careful work. This is a description of work by a man who has given thought to his methods, both the how and why, and he has the happy faculty of imparting them to others without superfluous words, and in a clear manner. There are a number of other ways and means of constructing gold inlays which have merit and have given splendid results to all who have carefully followed out the right procedure in each case. I myself have made use of several methods, including the hollow-swedged, the mat gold and solder, and this one described by Dr. Hinman, with both good results and indifferent results; the latter, however, I believe, from faulty manipulation and not from faulty method, as I feel sure that I have had good results from the three methods. At first I gave up the use of platinum for the very reason given by Dr. Hinman—the leaking of solder through tears and holes—but I think the platinum we get now is better adapted for matrix work, and there are times when I prefer not to invest the work. If I find a tear in the platinum of large dimension, I have sometimes invested it and placed a little moldine over the tear, doing the same sometimes with the gold matrix. I am glad Dr. Hinman has exhibited some of his ways of contouring. Right there is found many a slip in proper work, from the lack of proper proximal contouring, there being but a haphazard attempt at proper restoration or else the destroying of what little contour there is, by trimming and polishing away. Dr. Hinman spoke, not only most important, but really vital, words when he said the operator must have at hand correct methods of cavity formation. It is a very necessary proposition that the operator should give the case at hand a most thorough analysis of how it should be attempted. Many are prone to be guided by their shaping the cavities from mere cleansing out of debris, and not from the fact that all inlay work requires a cavity preparation of its own class and style, several points of which the paper has brought out. I am glad to hear him admonish us on the lack of use of chisels. In many an office excavators and chisels are never used, in fact their use seems to be in many cases a lost art, if they ever had the art of manipulation of them.

This is a paper and subject which deserves much discussion on the part of the society, as being of a rather new order of things, with a number of seemingly good methods. I believe we are away beyond the discussion of why we use gold inlays today, but we are ripe for the various hows, and we might still need some advice as to when we should use them.

Dr. Henry Barnes, Cleveland, Ohio: There is much in the paper to be commended. I do not altogether agree with the essayist's technique. I use platinum for the matrix. I furthermore use no flux whatever. Nor do I invest. Many suggestions for making porcelain inlays have no application to the making of gold inlays. My conclusion, after much experimenting, is that pure gold "sweated" into the matrix gives the best results. I do not care for a slight tear in the floor of the matrix. By my method of sweating no gold need pass through, to cause a misfit.

By applying portions of gold just where you need them, to round out a contour, the sweating process may be relied on to cause it to flow exactly where you need it.

A WARNING.

BY C. F. RODGERS, D. D. S., CONNEAUT, OHIO.

I wish to sound a warning to the profession against platinoid in bridge-work, and iridiumoid in bridge-work, and used in connection with baked porcelain crowns. I have been lately seeing the results of using platinoid. One case was put on six years ago, a bridge extending from second molar to first bicuspid, the second molar cap and first molar dummy being of platinoid to reduce the cost to fit the patient's purse, which I have found is a poor practice. Two years ago the molar cap disintegrated, the bridge was removed and a gold cap made; last week the patient came in with the molar dummy literally "rusted" to pieces. This patient had another bridge attached on one end with a Richmond crown on the cuspid; in making an examination I found the pin, which was of platinoid, nearly rusted off; so nearly that it could be broken with little force. The root was in good condition, also cement, showing that there was not faulty construction; the root, however, was almost black. Since then I have sent for several patients for whom I had used platinoid to more or less extent, and without almost an exception, all cases showed more or less signs of disintegration.

My first and only experience with iridiumoid was the result of the recommendation of the agent: "The fusing point of iridiumoid is in excess of 2,800 Fahrenheit. It is the only known substitute for iridio-platinum. . . . It can be used in any branch of dental work where platinum or iridio-platinum can be used. There is no experiment about it. . . . . You can prove or disprove our claims within fifteen minutes after you get it." Now these are pretty strong claims to make, and, coming as it does from one of the most reliable dental houses, should have weight. That is the unfortunate part of the matter: many dentists rely upon such statements until they find their mistake to their sorrow.

I did not find the truth of their statements in fifteen minutes—I wish that I had—but I "bit" on the statement, prepared a beautiful porcelain crown which I intended backing with Brewster's body, and as the pyrometer was running up and reached 1900°, I noticed a change in the pin; when the heat was at 1950° the metal literally squirted out of the shell of the pin, the outer part seeming to have charred.

I said several things under my breath which will not be proper to put in print, but it was my last and only experience with the delusive material in practice. I then made several tests and found that the melting point was between 1900° and 1950°. I wrote to the firm which made such claims and received a very courteous reply, stating their amazement and also that they would take the matter up with the manufacturers and inform me the result of the matter. This is the last I have heard of the matter. In the meantime I presume the procession of deluded ones is going on, but I hope that this warning will save some, if not many, of my brothers in the profession, similar experiences.

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SOME PRACTICAL SUGGESTIONS.*

BY STANTON A. STUART, CINCINNATI, OHIO.

BICUSPID CROWN FOR BRIDGE ANCHORAGE.

Combination gold-faced platinum crown with porcelain "cusp and face".

Tooth to be devitalized and prepared in the following manner (Fig. 1), upon which is constructed a band of gold-faced platinum, No. 28g: The band is cut to conform to the ground tooth and extending a little above outline. A piece of same material, No. 31g., is now formed to act as floor and soldered with pure gold (Fig. 2); this gives you a cup-like form. A facing is now ground to fit and pins bent to engage the bottom of cup. This is now waxed to place, invested and soldered with pure gold (Fig. 3). This is then filled in with "Jenkins' Prosthetic" porcelain to fulfill requirements (Fig. 4, sectional view).

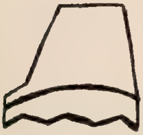

Fig. 1

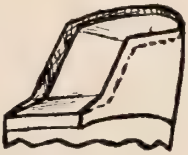

Fig. 2

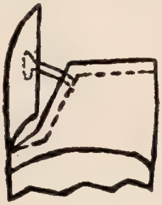

Fig. 3

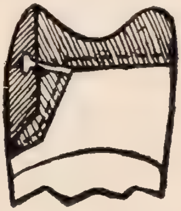

Fig. 4

DUMMY FOR BRIDGE-WORK.

A suitable facing being selected, it is backed with gold-faced platinum, No. 28g. It is to be bent at right angle, as shown in Fig 5. A piece of same material is now formed and soldered to top with pure gold to form cup (Fig. 6). This is now placed upon facing and pins bent. It is then filled in with Jenkins' Prosthetic

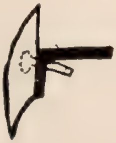

Fig. 5

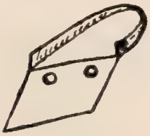

Fig. 6

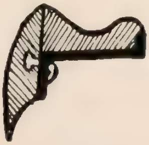

Fig. 7

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*Given as a clinic at Ohio State Dental Society, December, 1906.

Porcelain to form cusp, according to the requirements (Fig. 7, sectional view).

BICUSPID CROWN FOR RAISING BITE.

Crown made of gold-faced platinum and porcelain.

Make band of gold-faced platinum, No. 28g, letting it extend about one-sixteenth of an inch above tooth. Cut a piece of same material, No. 31g., to fit inside band and resting upon upper surface of tooth, solder with pure gold. Now fill in with Jenkins' Prosthetic porcelain to form cusp, according to requirements. (See Fig. 8). This crown can be used on lower molars and bicuspids in cases requiring (raising bite), also where a full upper denture is worn, in cases of trouble from gold cusps being worn through by plate settling.

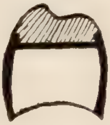

Fig. 8

SLIPJOINT ATTACHMENT TO HANDPIECE FOR MOISTENING GRINDSTONE.

BY DAVID STERN, B. S., D. D. S., CINCINNATI, OHIO.

Where the dentist uses a fountain spittoon, this appliance can be made a part of the saliva ejector and water syringe attachments, which usually accompany the spittoon. A very small stop-cock, to control the flow of the water, is connected with these attachments, and an eighth-inch rubber tubing connects this stop-cock with a metallic tubing, which is slipped onto the handpiece, whenever its use is indicated. This tubing is drawn out to a fine point, and by regulating the stop-cock, it allows the water to drip, drop by drop, upon the grindstone, as it is applied for grinding tooth structure for any purpose.

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*Clinic at Ohio State Dental Society, December, 1906.

THE IMPORTANCE OF CORRECT DIAGNOSIS IN THE TREATMENT OF IRREGULARITIES OF TEETH.*

BY DR. HARRY E. KELSEY, BALTIMORE, MD.

The unusual interest which the profession is evincing in this branch of dental practice is well evidenced by the great mass of literature which has appeared in the journals in the last few years from the pens of the most celebrated practitioners. Hardly an issue but has some, often many pages devoted to orthodontia, so that every phase of the subject has been treated by able writers.

Many of these content themselves with describing in detail cases which they have successfully treated, illustrating their methods, appliances, and the stages in the operation. Others confine themselves to theory and principle in their writing, and some have written books in which they have attempted to compile all that is known, both in theory and in practice, of this subject.

Therefore, in view of the large amount of available information, it is surprising how many dentists are still earnestly endeavoring to correct irregularties of the teeth by methods which are based on faulty principles and incorrect diagnosis. They use appliances and attempt to apply theories which obtained fifty years ago and the incorrectness of which has long been established Consequently, the practice of orthodontia has fallen into disrepute, not only with the general public, but also with a large part of the profession. Thus many able practitioners have not only ceased to treat irregularities, but regard with more or less incredulity and suspicion the efforts of those who have made a special study of them.

Those taking this position in the past could not be justly blamed for it, in view of the great percentage of failures presented and the haphazard and experimental manner in which all cases were conducted. They recognized the great need of their patients for help, but they were unable to give it. However, a few men have continued to work on through manifold discouragements and failures, unconsciously building monuments to their names by their untiring energy and zeal until they have emerged into the light of scientific truth, which is being verified over and over, not only by themselves, but by many others who have the benefit of their research and experience to guide them.

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*Read before the Virginia State Dental Society, 1906.

I cannot refrain from mentioning here the names of Angle, Case, Baker, Ainsworth, Farrar, Jackson and my preceptor, Dr. Bogue.

From such men as these we have received a classification of the various irregularities of the teeth, so that we may treat cases in the light of past experience.

We have learned that the loss of a single tooth means something less than perfection in the results that we shall attain.

We have learned (and this is more than all else) that upon the securing of a normal occlusion of the teeth depends our ultimate success in the treatment of all cases of irregularities.

In short, then, we have an accurate knowledge of the underlying principles which must guide us in diagnosing and treating such cases as come to us. And so, it is now no longer the practice to first busy one's self with the two or three teeth in a case which, because of their malposition, present an unsightly appearance, but go deeper and restore occlusal teeth to their normal relations with each other and the rest of the face, and very little persuasion will be required to induce the uneven and unsightly teeth to move to their natural positions, which have been vacated by the other teeth.

Thus it is plain that when a case presents for correction, before plunging in and deciding on a method of treatment, it is well to study it carefully, both from the mouth and from casts of the teeth, as well as in its relation to the rest of the face.

First of all, observe the position of the sixth-year molars. If the relation of the upper and lower on both sides is correct when in occlusion, it is almost certain that they are occupying the positions which nature intended them to, and there will not be any irregularity of the other teeth, which will be serious in its treatment. But if these four sixth-year molars are not in correct relation to each other, then some of them are not situated in the position which they should naturally occupy, and which they are, must be determined by the relation of the teeth in general to the rest of the face, until a more certain and accurate guide shall be discovered.

From one to all of them may be mal-poised, and there will always be a corresponding mal-position of the other teeth in the same arch and side. They are the indicators of normal or abnormal conditions, and if they are found badly misplaced it is quite likely there will always be marks in the nasal passages and throat for the rhinologist, and it should be a part of our diagnosis to send these patients to the rhinologist when there is the slightest reason to suspect the existence of obstructions in the nose or throat.

The sixth-year molar, which has been very properly and correctly termed by Dr. Bogue in some of his writings the "principal molar," should be the focus around which all of our exertions should center, and the loss of it at any age, but especially in youth, is truly a calamity, first to the patient, and then to the operator, as it is the well-founded belief of many students of orthodontia that it marks the beginning of degenerative stages in the whole dentition.

I think it may almost be said that to one who has studied these conditions, the loss of the sixth-year molar is apparent externally, from the lack of that contour of the face which marks all those who possess their full dentition. How very grave the condition, then which would warrant its extraction.

Summing up, I would say that the first thing to do upon presentation of a case for treatment is to inquire thoroughly into its history, going back at least as far as the parents of the patient and making notes.

Study carefully in the light of information thus obtained the contour of the entire face, taking note of the relative prominence of the features, and, providing the irregularity mars the facial appearance, the patient should be directed to have profile and full-face photographs taken for future comparison. This is a point I would emphasize, for such photographs are often only second in value to the original casts of the case in convincing the patient and others interested of the reality of the changes that have been brought about. It is remarkable how quickly some of our patients forget what the original conditions were.

However, all the data of a case should be primarily for the use of the operator in his work. Casts of the face are often of more value than photographs, and no one I know of has been so successful in obtaining them as Dr. Case of Chicago.

The sets of models of the teeth (upper and lower) should always be made, one set to keep for comparison and one upon which to construct appliances. The importance of having a sufficient number of good, properly articulated models cannot be too strongly emphasized. I have been consulted as to cases of protrusion of the upper teeth by dentists who had only a single model of the upper teeth to show, and could not tell whether the sixth-year molars were in correct occlusion or not. Correct diagnosis is, of course, impossible under such circumstances.

Finally, from the history, photographs and models make a careful study of the case and determine just wherein the relations of the teeth and face are abnormal, and when fully satisfied as to the cause and character of the abnormal conditions presented, then and only then decide upon a method of treatment, endeavoring in the construction of appliances to provide as nearly as possible for all future requirements of the case until completion.

NITROUS OXIDE.

BY CHARLES K. TETER, D. D. S., CLEVELAND, OHIO.

(Continued from Page 129, February, 1907, Number).

In March of this year I administered nitrous oxide and oxygen in the office of Dr. F. K. Ream, at St. Louis, Mo., to a patient for the removal of a lower unerupted and impacted third molar. This operation had been attempted before without success, and we understood it to be a difficult surgical case. The patient was placed in the sitting posture and nitrous oxide and oxygen was administered through the nasal passages by means of the nasal inhaler, anæsthesia was soon induced and the operation began. As anæsthesia progressed there was complete relaxation of the masseter and also some of the muscles of the neck, and mouth-breathing was noticed. At this stage the valves of the inhaler were closed to force the gas through the nose into the larynx and mouth, sufficient pressure being used to expel the atmospheric air and supply a sufficient quantity of the gas to maintain profound anæsthesia throughout the operation, which was completed in 35 minutes. The exact percentage of oxygen used could not be determined, as the patient undoubtedly breathed a small proportion of atmospheric air, and I was administering a small percent of pure oxygen also. The recovery took place without any great exhaustion. and the patient was removed to his home in a half hour after the operation.

Mrs. M., aged 50 years, was operated on by Dr. Parker for cancer of the right breast on December 15, 1904.

The condition of her heart was such that they thought it inadvisable and dangerous to administer ether.

I administered nitrous oxide and oxygen, and the pulse was even and full throughout the operation; a physician who was watching the effects of the anæsthetic stated that there was no noticeable results save a slight increase of force.

The entire breast was amputated and the patient was held in perfect control. There was no discoloration, no interference to respiration, and no distressing after effects.

The most severe test for this anæsthetic and the one which gives me untold confidence in the combination, when properly administered, is as follows: On November 22, 1904, a lady patient, about 35 years of age, and weighing 360 pounds, was to be operated for the radical cure of an umbilical hernia, by Drs. Parker and Fisher, at the Cleveland General Hospital. I induced anæsthesia and maintained it perfectly, having complete relaxation, for one hour and thirty minutes, at which time the supply of nitrous oxide was exhausted, so finished the last 15 minutes with ether and oxygen. I could maintain by far, in this case, a more even anæsthesia, and a better respiration, with nitrous oxide and oxygen than I could with the ether.

I have not the slightest doubt but that I could have maintained quiet anæsthesia for three hours if I had supplied myself with a sufficient amount of nitrous oxide and oxygen.

At the beginning of the administration 95 parts of nitrous oxide to five parts of oxygen was given; this was increased one part after every three or four inhalations until nine parts of oxygen was being given. At this time the patient had been breathing the anæsthetic for about 80 seconds, and complete surgical anæsthesia had taken place.

The patient was perfectly relaxed and the operation began. It was an extremely difficult and tedious operation owing to the extensive adhesions encountered, and the superabundance of fat.

The operation was entirely successful. The doctor at no time had to stop from movements of the patient or for the muscles to be relaxed, or any other cause, as the anæsthesia was tranquil and complete without cardiac or respiratory embarrassment.

The amount of nitrous oxide that was necessary to maintain anæsthesia gradually decreased as the operation lengthened, so that at the end of the hour the patient was breathing 85 parts or a little less of the gas to 15 of the oxygen, and the nitrous oxide gradually decreased until about 78 parts was being given to 22 of oxygen. If anæsthesia should have been carried on to greater length these amounts would have still changed, as the longer anæsthesia is maintained, the less amount of the anæsthetic is required.

I have administered this anæsthetic to patients for circumcision ranging in age from three to thirty years. I do not, however, consider nitrous oxide and oxygen an ideal anæsthetic for children of the age of six years and under, where profound and prolonged anesthesia is essential.

My experience has been in these cases that respiration was very uncertain when we had obtained surgical anæsthesia; especially is this the case when the child cries during the induction.

A much better and safer method for these little fellows is as follows: The administration is begun with 95 parts nitrous oxide to five parts oxygen, and the oxygen is gradually increased as the symptoms may indicate. It will be necessary to increase the amount of oxygen much more rapidly for these patients than it would for an adult.

This combination is continued until we have unconsciousness, but not surgical anæsthesia. At this stage air containing about 2 per cent chloroform is admitted. This is done with an appliance that is attached to the apparatus for administering chloroform or ether. The amount of nitrous oxide is diminished, but not shut off alogether, and it can be increased as we notice a return of consciousness.

A very small per cent of oxygen is also given as we overcome all cyanosis, and we obtain a much more tranquil anæsthesia than would be possible otherwise. This method may seem complicated and difficult from the description, but this is not the case, as quiet and tranquil anæsthesia is more easily maintained than with nitrous oxide and oxygen.

Respiration is interfered with much less than it is when the gas and oxygen is administered alone and the heart action is generally good unless we induce too deep anæsthesia. Although the heart action is affected by this method to a greater extent than it is with the nitrous oxide and oxygen, the respiration is far better, making this method in these exceptional cases the safest anæsthetic.

The amount of chloroform used being small, the patient recovers consciousness quickly, and it is rare for them to be nauseated, but this does occur more frequently than if the chloroform had not been used.

Before administering this anæsthetic for circumcision the patient should have the same preparation as for an anæsthetic.

These are the only cases where I have found it safer to administer chloroform or ether with nitrous oxide and oxygen. I have found it necessary at times to administer a small amount of these anæsthetics with the gas and oxygen, when perfect relaxation was essential, as for the reduction of a dislocation or an extensive laparotomy. But even for these operations it is the exception when this is necessary.

I have administered this mixture many times for the removal of the tonsils and adenoids, and consider it by far the most valuable anæsthetic, either local or general, for this line of work.

For adenectomy and tonsillotomy the anæsthetic is administered by means of the nasal inhaler through the nasal passages, and anæsthesia can be maintained to the completion of the work.

In none of these cases was there any nausea or vomiting where attention had been given to diet, nor will there be, if the patient has no undigested food in the stomach. This fact must not be lost sight of, for if profound and prolonged anæsthesia is to be maintained, it is just as essential that the stomach and bowels should be empty, as it is with other anæsthetics. But for short and minor operations, when profound anæsthesia is not needed, it can be given without these precautions and vomiting is a rare occurrence indeed.

It should be remembered also, that there should be no restriction to respiration from tight clothing, and in case of women the corset must be removed, as I have found this not only to be a restriction to breathing, but nausea and vomiting is much more frequent when the corset is left on than it is when it has been removed.

The reason for this lies in the fact that a much greater time is consumed in inducing anæsthesia, as the diaphragm can not fully descend, thus confining the breathing to the upper part of the lungs.

The diffusion of the gas in the lungs is necessarily much less than would be the case if there was free expansion of the thoracic cavity in all directions and full descension of the diaphragm.

Elimination would be retarded also for the same reason, thus favoring nausea and distress.

The administration of nitrous oxide to persons affected with cardiac lesions is generally accepted admissible, if the general health is good and in combination with oxygen is far safer than nitrous oxide alone.

There are but one or two conditions where it may always be considered somewhat dangerous. One of these is in the disease known as Hodgsons' Disease.

Those familiar with the action of nitrous oxide free from oxygen will readily see the danger.

Hodgsons gives the following description of this disease:

"One of the most frequent affections of the arteries is the accumulation of atheromatous purulent matter between the internal and middle coats of the vessels. The diseased part is yellow, opaque and usually a little elevated. At times these elevations are considerable and very extensive, while in other cases they are circumscribed and present a tubercular or pustural appearance. Upon cutting into this there may be expressed a substance the consistency of which varies from that of cheese to ordinary pus. An ulceration occurs sometimes at the surface of these elevations, and penetrates the middle layer of the vessel and produces an aneurism, Calcareous matter is deposited frequently in the center of these eminences. In advanced age it is common to find the arteries studded with calcareous matter, and the appearance of the vessel depends entirely upon the extent of the deposit. Sometimes the internal layer presents numerous fine white spots, while in other cases the calcareous matter is mixed with cheesy deposits. More generally it forms a sort of crust which crackles under the fingers like an egg shell."

Diagnosis of this disease:

In the beginning it is not well marked and if it occurs in young subjects may pass unnoticed, but at this stage there is no harm to come from the administration of nitrous oxide. When this condition becomes dangerous for the administration of this anæsthetic, it will usually be noticed in aged people by the condition of the arteries. The radial will be found to be large, hard, destitute of elasticity, little dilated by the cardiac pulsation, and resisting the pressure of the fingers, and the artery will be found to be sinuous.

The arteries in the neck will be found to be large, sinuous from elongation so that they are curved even during extension.

This condition is indicated also by a ring of corneal opacity in the eyes of the aged, known as Arcus Senilis.

I give this diagnosis of the disease as I would consider it a grave undertaking to administer nitrous oxide to a person thus affected, as the action of the gas stimulates the heart, and the vasomotor system; blood pressure is raised, and a rupture might occur.

If this anæsthetic is given, the non-asphxyial method should be used, and a large per cent. of oxygen should be given to overcome all cyanosis. We should double our diligence and be quick to recognize premonitory symptoms.

The same would hold good also for administering nitrous oxide free from oxygen to a patient who had suffered a stroke of apoplexy, as we have previously shown the effects of the gas upon the brain, the reasons for this will readily be recognized.

I would not, however hesitate to administer nitrous oxide and oxygen to patients so affected, if it was essential for an anæsthetic to be given.

The greater my experience with this anæsthetic, the more gratifying are the results obtained, and the more convinced I become of its superiority over all others in a very large proportion ,of operations that we are called upon to perform.

I am sure that the mortality record from surgical operations would be far less than it is at the present time, if nitrous oxide and oxygen were more universally used as the anæsthetic agent.

Since writing the above article I was called upon to administer nitrous oxide and oxygen in a case which will be of interest because it is the greatest length of time any person has ever been kept under the influence of nitrous oxide and oxygen for a surgical operation.

Case 397. Mrs. S——, aged 33 years. Nitrous oxide and oxygen was indicated in this case owing to some valvular lesion. The patient was large, obese and of a plethoric nature. The operation was the curetting of the uterus, followed by an extensive laparotomy, in which a great many adhesions were encountered, necessitating a tedious dissection. The patient, not being susceptible to the anaesthetic, was a hard subject to anaesthetise; it took about five minutes to obtain surgical anaesthesia. Nirous oxide alone was given for the first few inhalations, and then 3 per cent. oxygen was admitted; this was gradually increased until 8 per cent. was being given. The patient became unconscious in about seventy seconds, but muscular reflexes were quite active for about three minutes. There was some cyanosis present, but I was able to overcome this after the patient had been under about seven minutes, after which perfect anaesthesia was maintained to the completion of the operation. This patient was under the influence of nitrous oxide and oxygen, without one breath of air, for two hours and forty-eight minutes. Nearly 600 gallons nitrous oxide and 60 gallons oxygen were used. Upon the completion of the operation the anaesthetic was withdrawn and the patient regained all of her mental faculties within one minute, and there was very little shock from the procedure. Nausea and other post-anaesthetic complications were entirely absent, the patient making a speedy recovery.

A METHOD OF TAKING IMPRESSIONS FOR FULL DENTURES BY THE USE OF MODELING COMPOUND AND PLASTER.*

BY S. D. POTTERF, D. D. S., DEFIANCE, OHIO.

For full upper impressions, first get a cup that approximately fits the arch. Reaching back over the condyles use soft modeling composition, enough to reach as high as you wish, but not excess enough to disturb the tissues.

Get preliminary impression of mouth, and from this preliminary impression make a preliminary model. Mix plaster thick, use a little sulphate of potash, and run model. In a few minutes your model will be hard enough to use.

Now select a cup that will require the least cutting, use a horn mallet, or by bending in any way, shape your cup so as to use the least amount of modeling composition to reach as high as you wish your plate. Leave a little space between the posterior edge of the cup and the roof of the arch.

Now, having the cup properly shaped, place into it some soft modeling composition, and then soapstone your temporary model, and take an impression of same, forcing out excess of modeling composition, and trim off excess. Remove model. You now have just enough modeling composition for this impression.

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*Description of clinic given at Ohio State Dental Society, December, 1906.

Now comes the most careful part of this work. Place impression in water hot enough to soften composition, place cup in the mouth carefully and square on the arch, hold firmly in position, have patient open mouth and draw down the lip, so the muscles and frenum will mark the height they will tolerate plate. As soon as composition begins to set, with forefinger reach back to the heel of the cup and press composition against posterior arch, also around condyles and rim in canine region above cup. After modeling composition sets, remove and chill.

Now mix up some quick-setting plaster, using a little sulphate of potash to the consistency of thick cream. Pour into impression, covering the whole surface, and sling out all but just a coating, and quickly place back into the mouth, and when plaster has set you will have the best fitting impression it is possible for one to get.

Too much plaster in the last effort will spoil the impression.

For lower impression proceed same as above, pressing modeling composition well against the inner side of condyles.

ROOT CANAL FILLINGS.

BY E. J. LOESSER, D. D. S., TIFFIN, OHIO.

It is not my intention to indulge in a comprehensive consideration of the chief merits and methods of all the root canal filling materials that are advocated, but to call your attention to two of the most important factors of this subject, namely, Zinc Oxychlorid and Gutta-Percha.

For the past forty years these two materials have been chiefly used, but which material has been used the most would be a very difficult matter to decide, and we are no nearer a settled policy in this matter than we were forty years ago.

Some dentists advocate the employment of the oxychlorid and strongly condemn the use of gutta-percha, but nevertheless, we must agree on two necessary qualities, namely, the material should fill the canal, and it should remain charged. Although some dentists desire the additional qualities, ease of insertion and ease of removal, yet many other dentists do not include them, for while there is no virtue in difficult manipulation, a dentist at no time should admit the propriety of any method because it is simply easier. The second point, ease of removal, should not be considered at all, for a material has been found that does away with the need of removal.

Zinc oxychlorid is the only antiseptic yet known, and has been known as such from the beginning. It is also recognized that it is the only material which will absorb the gases from the root canals, and itself remain unchanged. Up to this date it is the only antiseptic material yet found which can be used as a filling material in the root canals. In cases where it is always possible, and often probable, of gas forming in the pulp canal, this oxychlorid of zinc is the only material which will take care of these gases. It is as easily used as any, will fill the pulp canal as perfectly as any, and fills it more permanently than any other. Zinc oxychlorid is used first very thin, and can be introduced into the pulp canal without thoroughly drying the canal. For fear of causing slight irritations by accidentally forcing a little free chlorid through the foramen, always seal the extreme points with gold or gutta-percha.

After calling your attention to several apparent objections to the use of gutta-percha in the root-canals, permit me to state that gutta-percha will render good service if properly inserted into the pulp canal. I remember very distinctly of discussing this subject of gutta-percha as a root-canal filling material with a dentist who has been practicing for at least fifteen years. He expressed his opinion about this matter, stating that it was nonsense to use gutta-percha in filling root-canals and that invariably he has found in opening nerve canals filled with gutta-percha, even if filled for only six months, a strong odor of sulphuretted hydrogen, which is, as he says, never the case when the canal filling is of zinc oxychlorid. He also stated that gutta-percha is usually employed at first in solution in chloroform, this to be followed by points or cones, so condensed as to make the material as solid as may be. But the very best condition attainable with gutta-percha would seem to be a mass of material moistened with chloroform, which sometime will pass out of this material either by evaporation or endosmosis, leaving a shrunken cone only partially filling the cavity. This he explained in part, the almost universally admitted fact that a gutta-percha canal filling has a bad odor. But, as I have remarked before, that after calling your attention to the several apparent objections to the use of gutta-percha in the root-canals, permit me to conclude by repeating that gutta-percha will render good service if properly inserted.

ABOLISH THE DENTAL DEGREE!! WHY? HOW?

BY DR. F. W. STIFF, RICHMOND, VA.

When the two questions asked in the title of this paper are satisfactorily answered, dentistry will have taken a stride forward which will make the advances of recent years appear almost insignificant. Let us be frank with ourselves and discuss our position calmly and dispassionately.

We are a branch of medicine—the healing art; no one would dare, in this day, after the achievements of dentistry, dispute that statement. Indeed, we have been so considered by thinking men since the organization of the first dental school. Hear Dr. Bond (M. D.), in his address to the first graduates of the B. C. D. S., Drs. Arthur and Mackall (both graduates in medicine): "Dental surgery is not a mere art separate from and independent of general medicine, but is an important branch of the science of cure," and "your principles of practice have been carefully formed in a sound knowledge of general medicine."

The ground of refusal of the U. of Md. to teach dentistry, and later of the New York schools, was not that dentistry was not a branch of medicine, but, in the words of the faculty of the institution named, contained in a letter to Dr. Chapin A. Harris (who, together with Dr. H. H. Hayden, was the founder of the first dental school) because, "the subject of dentistry was of little consequence, and thus justified their unfavorable action."

As long ago as 1848 members of the faculty of this dental school were appointed as delegates to the meetings of the Am. Med. Ass'n. showing they were considered a branch of the medical profession.

And yet, while all this is true, we do not hold the medical degree.

Other branches of medicine, as surgery, the general practitioner, the physician, the eye, ear and throat, and the rest, hold the degree of M. D., and practice along the line of their specialty.

We, practicing as dental surgeons—admitted by all to be a branch of medicine, the healing art, are not doctors of medicine, holding, as do all other branches, that degree, but doctors of dental surgery, with the degree of D. D. S.

Admitting all this, it might be asked, Why do away with the degree, since it calls attention to the specific line of work we do and we are recognized by the other branches of medicine as a part of their profession?

There are many answers to this.

Other branches of medicine do not require a specific degree to designate the nature of their special line of work. Why should we?

The acknowledgment that dentistry is a specialty of medicine is made by physicians (many of them) rather grudgingly and the fact that we do not hold their degree inclines them to feel that we are not quite in their fold. Many of them are still so far in the past and so ignorant of our profession as to class us with the mechanic and look upon us as beneath them in professional dignity, whereas, if the D. D. S. degree were abolished and we were required to pass the same examination as the medical student there could be no such unfavorable comparison, and dentistry would at once be lifted to the level of the other branches of medicine, even in the opinion of such critics, certainly in that of the more intelligent of the physicians and the general public who now accord us our just deserts yet feel that the medical degree, being older and embracing a wider range, is entitled to greater respect and honor.

In which they are perfectly right. Indeed, the two degrees cannot properly be compared with each other—the M. D. embracing the whole art and science of healing, and the D. D. S. comprising only one branch of it.

For this reason alone the dental degree should be abolished—the branch of dentistry is embraced in the generic term, so to speak, of Doctor of Medicine, and is at once superfluous and presumptuous.

We claim to be a part of the science of medicine, and yet must, forsooth, bear a distinct title, which no other branch has the temerity to aspire to. Our part of the great healing art is so important—so far above surgery in general, or any other branch of medicine, that it must be specifically named in the degree, and we must be known as Doctors of Dental Surgery!!

And yet we are only to blame for this in that we are taking no steps to correct the error (if error there was) of our founders in originating the obnoxious title.

It is doubtful if Drs. Hayden and Harris would have been allowed a charter for a school to teach dentistry and confer the degree of M. D.

They were brainy men, and doubtless pondered long over the problem. They knew what was best—what should be done, as evidenced by their endeavor to secure the teaching of dentistry by the medical schools. They knew that as a branch of medicine, dentistry should be taught by medical schools and the medical degree conferred, but they were not allowed this.

They took what, in their view, was the only other course—organized a distinctively dental school, and finding it necessary to distinguish their graduates from the many who were not taking college instruction, gave the troublesome degree of D. D. S.

But now, after 65 years, would it not be well to undo this—dispense with this degree and adopt the older and better general title of M. D.?

It is perfectly marvelous, almost miraculous, what has been done in these 65 years. We can well hold our head up and face, not our sister profession, but our mother profession, in all her branches, and say, with just and commendable pride, See what we have done! Are we not worthy a high place among you? We do not come as suppliants, asking, as of yore, to be taken into the family and given the family name, but we demand admittance as a right, proven and well earned.

To hold the medical degree will give us a higher standing with the general practitioner, the specialist and the public.

It will greatly raise the intellectual standard of the profession as the very fact that it would be required to take medicine in order to qualify to practice dentistry would act as a bar to weaklings and attract men of better preliminary education. It will dispel the prevailing opinion that, as dentistry is largely mechanical, it does not require high intellectual acquirements to succeed in it, and the result will be a better class of matriculates in our colleges. This improvement intellectually will also tend to eliminate the dental parlor advertising practitioner, for it seems to me that the more cultivated the intellect the more sensitive becomes the appreciation of professional ethics and the greater desire to uphold the dignity and high standing of the profession. Who will show me a highly cultivated, ethical dentist, who holds his head high in the community and is well thought of as a man and a gentleman, who says and feels that his profession is equal to that of the physician, his neighbor, and yet who advertises to "pull teeth painless for a quarter and make sets for $5, putting in gold fillings for a dollar, $10 a dozen, amalgam fillings for love of the people."

The two are incompatible. The higher the educational attainment the less likely to bring reproach on the profession in any way.

Then no one will question that a knowledge of medicine makes a better, more efficient dentist, one abler to cope with local disease. A knowledge of the whole is necessary to the perfect knowledge of a part. No portion of the body is dissociated from and independent of any other part, however remote or different in function. All are closely connected and sympathize keenly with another. St. Paul realized this nearly two thousand years ago when he wrote, "And whether one member suffer, all the members suffer with it."

So it is not only desirable, but actually necessary to the attainment of the greatest efficiency in any branch of medicine, whether it be dentistry, surgery or general practice, to be possessed of a knowledge of the whole realm of medicine. This reasoning applies not only, as may be observed, to the branch of dentistry, but to all other branches of the profession of medicine, for the disorders of the oral parts react on the other organs and parts, just as the diseases of these other organs act upon the teeth and surrounding parts. So that it is extremely necessary for the general practitioner, for instance, to have a knowledge of the teeth and gums and their diseases and relations to other parts of the body in order to his attainment of the highest proficiency and usefulness to the people he may serve.

So I claim that to abolish the dental degree and substitute for it the degree of medicine would dignify our profession, would greatly raise its standard and put it on a par with any other branch of medicine.

That is *why* abolish the degree, given in a wordy, incoherent way. I feel that many other and likely better reasons might be given for it, which the discussion will no doubt bring out.

The second part of the subject—the answering of the question, How to abolish the dental degree— is more difficult.

It is needless to attempt to conceal or dispute the fact that behind all dental education by the colleges is the money question. Therefore, it is quite likely that many of them would oppose any movement which they might think would reduce their revenue, if not put them out of business entirely. I am of the opinion that we are to look more to organizations of practicing dentists and the enactment of laws through their influence than to the schools for this reform. If we can secure the hearty and enthusiastic influence of our State Board of Examiners and the state and local societies we might be able to secure the passage of a law by the next legislature which will answer the purpose.

Such a law as would require those desiring to practice dentistry to be examined by the Medical Board, on which would be placed, say, three dentists, to examine on purely dental branches, would likely meet the case.

This would abolish the Dental Board and require a remodeling of the present dental law.

The dental departments of our schools would need to arrange with the departments of general medicine as to the details, etc. These would have to be worked out after great consideration of the subject by our best men.

The effect of our graduating from the Virginia schools and allowing to enter the state for practice only graduates of medicine, or such only as could pass the medical examination, would put the state in the forefront as the leader, not only in this matter of degree, but in dental education as well.

PRESIDENT'S ADDRESS.*

BY DR. J. L. WALKER, NORFOLK, VA.

First of all, we would notice, with sad hearts, the vacancies that have occurred since our last meeting. The all-wise hand of Providence having removed from us two of our beloved and hon-

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***Presented at the Virginia State Dental Society, 1906.**

ored members—Dr. H. W. Barksdale, of Charlottesville, and Dr. J. McKinnear, of Newport News. We deeply deplore their death and earnestly unite with the bereaved families in mourning their loss, and shall ever bear in kindest recollections the memory of our past association with them; and would recommend that a committee be appointed to do further honor to their memory by drafting suitable resolutions to be placed on the records of the association, and a copy to be sent to the respective families.

And now I wish to express my sincere appreciation of the honor which, a year ago, you conferred upon me—an honor which lies not alone in its official dignity, but owes its significance principally to the character and reputation of our organization. This consideration impresses me deeply with the sacredness and importance of my responsibility as your presiding officer; and while it seems parliamentary ability has been totally excluded from my small store of natural attainments, I would offer you in its place a full supplement of earnest effort and hearty co-operation in the promotion of anything that will in any way tend to the advancement of our profession, and to the well-being of our society.

Observation teaches us that there is no phenomenon more perceptible than the egotism of the present age. It is constantly vaunting itself and loudly boasting of its stupendous progress in all the arts of life; and we can look about us and recognize a good foundation for these noisy claims of superiority. Truly, there never was a time when human life was so wide in its range of action, or so intense in its meaning as now, and it is with pardonable pride that we appreciate the thought that in the onward stride, the science of dentistry has kept apace; yet there are always flaws that impair the symmetry of professionalism, and that mar the harmony of mutual concord in all the different forms of brotherhood and the business pursuits of life. We know the import of our science; we understand its great conduciveness to the health and happiness of the human life; therefore, we should never tire in our endeavor to attain to its highest and best principles. We should strive unremittently to increase its facilities and to push its progressiveness; we should use our means and our influence unsparingly in its further development; we should look to a more thorough system of mental and moral training, and we should consider the fact that, as a society, our common responsibility is to work unitedly and individually for the advancement of the profession at large. To this end, every true fraternity must have unity of purpose, and that unity of purpose, to insure its permanent success, must be propelled by those silent forces that lie behind all the great works of the man's hands, and from the moral purposes of human hearts. It is said that this is the most practical of ages, and at the same time, the most impracticable of all ages. "It is practical in all that concerns material, lower life, and the most impracticable in all that concerns the spiritual, higher life. Thus it is that there is growing up, side by side, often in the same individual, a gross materialism on the one hand and a refined unsubstantial sentimentalism on the other." Spurgeon says if a crooked stick is before you not to explain its crookedness, but to place a straght one by its side, and the work is done. And so let us place at the stronghold of conscience those faithful sentinels—Reason and Justice—and with the combined forces of an indomitable will we can keep from our midst such disturbing elements as often invade mortal heart and mind, and which stand with their long train of petty annoyances in the way of good fellowship. In other words, we will, in our pursuits for a livelihood and in our association with each other, and with the world, follow faithfully this perfect outline, viz.: "Giving all diligence, add to your faith virtue, and to virtue knowledge, and to knowledge temperance, and to temperance patience, and to patience godliness, and to godliness brotherly kindness, and to brotherly kindness, charity." And thus we will strive for ideals founded upon honesty of purpose, and our daily business will become a training for the immortal kingdom.

I hope sincerely that each of us will gather here many ideas of value and profit to us in our future work; and while able pens dwell upon the technical points of our profession, we must bear in mind that "to hear, to understand, and to bring forth fruit are the grand evidences of a true worker;" but we must not become so much engrossed with our personal affairs that we lose sight of the larger issues of life. Nothing is more bracing to the human spirit than the giving of a goodly measure of respect and consideration to the community, the state and the world. For instance, we remember that we are assembled on one of the most historic spots in the new world. History tells us that three centuries ago, the first Anglo-Saxon settlers found refuge from a storm behind this very point, and afterwards they sought shelter behind another point; so this was called "Old Point Comfort." But it is superfluous for me to go into historic detail—only these environments fill our hearts with feelings of patriotic warmth and enthusiasm. It is an inspiration to us to know that right here our Pilgrim Fathers walked, talked and achieved, and that "the same waves that brought them o'er still roll on the bay and throw their spray as they break along the shore." And the pilgrim spirit takes full possession of us when we look upon these reminders of those old days; because we realize that they form so great a part of the history of our generation and of our country, and because we know that here begun the civilization and political progress that we now enjoy. And last, but not least, do they remind us that here frail womanhood endured bravely the dangers and hardships of those dark ages, and that from the arms of that suffering motherhood sprung the long line of ancestry which spreads across our continent today. It is very easy to compare the great affluence and prosperity of today with the poverty of those colonial days; it is easy to note the moral and intellectual progress since then, and this suggests the thought that our national existence is certainly a product of an evolution in history, and what our nation is has been "made through the operation of very distinctive laws of cause and effect."

Great, indeed, are the possibilities of human achievements and the work of international amelioration must, and will, never cease; hence we should enter loyally into the spirit of the world-wide community of interest which will be symbolized in the ter-centennial of the coming year. Let the law of service in this matter be central and distinctive with us. "The world is made and administered upon the law of interdependence and helpfulness. The perfection of nature is made possible only by the interrelation of different forces." And so we, for the Jamestown dental convention, should, as patriots and citizens, spare neither labor nor influence in discharging the functions as promoters of this enterprise. Individually and collectively, we can soulfully and zealously enter into the spirit of it; because, in the first place, our native pride is involved. We are proud of our fatherland; we cherish its perilous past; we glory in the splendid record of our southland, but we love and reverence our dear old mother state, and we want to impress the world more forcibly with the very high position which she has always held in the American confederacy; and we will rejoice to bring the nations together and hold a grand reunion ' neath the branches of the "National Family Tree" The celebration will bring about such a lively interchange of wholesome American ideas, and without sectional feelings, we can enjoy together progressiveness in its different phases, and look forward with mutual anticipation to the fulfillment of future promise. We can, indeed, compare among ourselves as an equally interested people, "the meagre promise of 1907, with its mighty fulfillment;" and when our brain becomes weary of considering the pleasure and benefits derived, we can cuddle together like children of the same fatherhood, and while old Ocean sings us a lullaby of "Ye olden time," we can have a quiet, peaceful rest in the cradle of the Republic. I have neither time nor talent to devote further to the subject; but in lending our aid to the cause, let us remember that "enthusiasm is one of the most powerful engines of success. When you do a thing, do it with a will; do it with your might; put your whole soul into it; stamp it with your own responsibility—be active; be energetic and faithful, and you will accomplish your object. Nothing great was ever achieved without enthusiasm."

A colored divine, in talking to his people on the subject of "Half Way Doin's," said:

"Dis worl' dat we's a-libin' in is like a cotton row
Whar ebery poah nigger hab got his line to hoe,
And ebery time a lazy brudder stops to take a nap,
De gras' keeps on a-growin' for to smudder up his crap.

"When Moses led de Jews across de waters ob de sea,
Dey had to keep a-goin' jis' as fas as fas could be;
And do you 'spose dat dey could eber hab succeeded in de'er wish
An' reached de promised lan' at las' if dey had stopped to fish?"

ADENOIDS AND THEIR RELATION TO ORTHODONTIA.*

BY W. H. PEARSON, D. D. S., HAMPTON, VA.

Having so many cases of irregularities of the teeth to correct, and observing that there are so many children along the Atlantic coast who are mouth-breathers, naturally our attention is called to a close study of one of the most important factors in the cause of this unfortunate condition.

The functions of the nose, in order of their importance, are (1) Respiration, (2) Olfaction, (3) Phonation, (4) Ventilation of accessory sinuses of the ears. The dryness in throat caused by mouth-breathing convinces us that this is not the proper channel for air respiration and that mouth-breathing is a pathological condition giving rise to many injurious results, the chief one in our practice being orthodontia. The affection which is most frequently met with is chronic enlargement of the pharyngeal tonsil, commonly known as adenoid vegetation or post-nasal growths.

ETIOLOGY.

It is an affection largely met with in children and occasionally in adult life. The third tonsil is believed to be more susceptible to enlargement than any other lymph tissue of the body, and like all lymph tissues, when once inflamed, is always less resistant to inflammation and more liable to hypertrophy.

Climate of extreme heat, cold and dampness seems to be favorable to its development. Repeated attacks of acute nasopharyngitis tend to hypertrophy of lymphoid tissues. Atrophy usually occurs in adult life, but the mouth-breathing habit is fully established and the teeth continue in worse occlusion and features become more disfiguring.

SYMPTOMS.

The existence of adenoids is frequently recognized by facial expression of child, although one should be careful in diagnosis from this alone, as exterior nasal stenosis may produce a similar expression. In both, the mouth is open the most of the time, nose thin, nostrils narrow, from lack of development, depression, on either side of the alae deeper than normal, and the general expression dull, often listless and idiotic. On questioning parents we may elicit the fact that child is a mouth-breather, especially at night. In some instances there may be a struggle for breath at times, and child may start up from sleep quite frightened. Others may seem to have a continuous cold in head, and when asleep will frequently cough. There is a liability of croup and bronchitis. Adenoid hypertrophy, therefore, serves as a plug to the posterior nasal opening and obstructs nasal respiration in part or completely, according to glandular enlargement. The plugging up of the posterior nares necessitates oral breathing and constant open-mouth interferes with the normal adaptation of certain facial muscles, which in turn make radical changes in contour of soft and developing bone of face. The air cavities in communication with the nose, as the frontal, maxillary, sphenoidal and ethmoidal sinuses, which are necessary to the proper development of their respective bones, cease to develop when circulation of air through nose is disturbed, interfering with natural intent regarding the dimensions of face and head, and still further deforming physiognomy. The unusual atmospheric pressure upon the buccal surface of the palate process and the impact of air currents to and fro during mouth-breathing, together with the lessening of internasal air pressure incidental to nasal obstruction, gradually force upward the center of the hard palate, thus changing the obtusely rounded Romanesque arch into one of Gothic shape. Elevation of the palate and lessening the transverse diameter of the jaw causes it to grow pointed in front—the so-called V-shaped denture. The teeth are many times rotated on their axis, especially those near the front. There are a number of irregularities caused from adenoids, as I will undertake to prove by several models taken from cases who were first operated on for adenoids before correction of cases. There are some authors who attribute elevation of the palatal arch to a perverted production of the permanent teeth, others to heredity, yet you find children born with normal mouth and perfect features who in a few years develop mouth-breathing habit, and a complete change of mouth and features take place, caused by these growths in nose. The elevation of the palatal arch produces contortion within the nose for the septum, composed of the voma, a perpendicular plate of the ethmoid bone and its cartilagenous portion, hasn't the power of resistance to the bone by which it is encased; designed by nature to fill vertically the space from floor of nose to the roof. The formation of these adenoids in the nares causes the septum to be forced to provide for itself by bending and curving laterally in various directions. When these conditions occur there is an additional impediment to nasal respiration and drainage which leads on to worse conditions, such as nasal catarrh, characteristics by enlargement of the turbinated bodies. There are several varieties of the thoracic deformities caused from this trouble, with which I will not bore you.

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*Read before the Virginia State Dental Society, 1906.

PATHOLOGY.

Post-nasal adenoid growths examined under microscope are found to consist of a retiform network of connective tissue filled with lymph corpuscles. The growths are richly supplied with blood-vessels and are covered with a layer of ciliated epithelium. The adenoid forms a large mass in the vault of the nasal pharynx, usually with a median cleft; from this central mass two bands usually extend downward and become lost behind the posterior pillar's of the forces. Often masses are found filling Rosenmuller fossae, and these masses may be adherent to the eustachian cushions.

TREATMENT.

For pronounced hypertrophy the only satisfactory method of treating is removal by surgical means. There are a number of methods, but the best is by use of forceps, made especially for the purpose, and curets. Whenever these cases come before me I send them to a specialist. If there was none convenient, I would not hesitate to undertake the operation. Before commencing a case of irregularities where there are adenoids, it is absolutely necessary to have the growth removed and normal breathing established by keeping mouth closed, for without this correction it is impossible to be successful with regulation. Teeth are very readily moved to their normal occlusion, but will not remain so unless breathing is normal.

PROGNOSIS.

Before giving a prognosis of any operative procedure for adenoids, it is necessary to consider the various conditions of patient. In any ordinary case, prognosis is favorable. Sometimes recurrence will take place, but these cases are rare. In some thirty or more cases under my observation in the past three years, there has been only one to recur.

THERE COMES A TIME.*

BY DR. J. F. SIDDALL, OBERLIN, OHIO.

There comes a time; it is well to be getting ready for *IT*:
A time to be laid on the shelf—in short, a time to quit.
You may think you are going to be on deck and work forever;
But there comes a time that will say to you, "Come off. Did you ever?"
It is time to "hang up da shubble and da hoe," and to let 'em be,
And to "go 'way back and sit down," and do no more work, for see,
There's another feller that's ready to take your place, and to fill it.
When a dog has had his day, there is somebody waiting to kill it.
So now you had better keep sweet, and watch the old world just go it;
If you're not quite pleased that you're not in the swim, let nobody know it.

DISCUSSION.

Dr. C. R. Butler, Cleveland: There is not much to be discussed in the "poem."

It may, however, serve as a text for a few remarks. In the first place. I would take exceptions to the expression that there is some one standing ready to fill another's place. Every individual has his place, and he must fill it, if it be filled at all; and if any man, old or young, essayed to fill Dr. Siddall's place it would be a dead failure.

So I will close by giving you the following poem:

SOMEBODY OLDER THAN YOU.

Have you ever thought, in your daily life,
How much of your pleasure is due,
How much of your strength in toil and strife,
To the people older than you?
Just fancy a world where all were young,
In which you would never meet
The gracious calm of a thoughtful age,
In either the home or the street!

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*Read at Northern Ohio Dental Association, June, 1906.

Who have helped you most in hours of care,
In time of sorrow and pain?
To whom have you gone in darkest hours,
Over and over again,
When the head was sick, and the heart was faint,
And you scarce knew what to do?
Ah! then you knew you must turn for aid
To somebody older than you!

Oh, far more blessed the happy home,
Where the wise and aged tread!
Where we lean on the heart that has conquered life,
And honor the hoary head;
Where we lend our sight to the fading sight,
Our hand to the failing knee,
And say "Thank God" at morn and night
For somebody older than me.

What a hurly-burly life would be,
What a down-hill, reckless race!
If the aged did not hold the reins
And steady the giddy pace!
Look over the past and you will find,
And you honestly search it through,
That the joy and strength of your life has come
From somebody older than you.

Then lift your hat to the old and wise,
And honor the blessing of age!
A father's and mother's word and smile,
The counsel of friend and sage,
And just remember, in daily life,
How much of your pleasure is due,
How much of your strength in every strife,
To somebody older than you!

COMPILATIONS

A METHOD OF ANCHORING BRIDGES BY SWAGED INLAID ABUTMENTS.

BY JOSEPH W. WASSALL, M. D., D. D. S., CHICAGO, ILL.

* * * The substitute I have to offer for the old method is a crown inset into the substance of the tooth, the gold margin of which is flush with the tooth's surface.

The method recommended has been in use in my office as routine practice for some time, and is a development and outgrowth of the swaged gold inlay method of tooth-filling, being a more extended application of gold inlay work. Such a covering seems to furnish a tenaciously adhering attachment even when the natural tooth is much wasted and broken down by caries. Indeed, it is a constant surprise how securely such a covering seats itself and is retained.

There is no longer any necessity of extending the margin of a crown beneath the gum margin of bicuspids and molars. This alone is a great gain in permanency of operation, promoter of hygiene, comfort to the patient during procedures, and ease to the operator. The new crown is in reality an "inlayed" crown, so far as its marginal coaptation is concerned. The continuity between tooth surface and gold crown, i. e., the gold being flush with the tooth surface, without any overlapping gold band, is the ideal condition in all tooth crowns. This is the essential feature of the method. It should be understood that there is also perfect coaptation of metal to tooth over all covered surface.

A great advantage in the method is the opportunity it affords of avoiding destruction of sound tissue. It enables one to construct a partial crown, to restore teeth which are much broken down by allowing the inlaid crown to embrace two or three sides of the tooth only, where, by the old method, the whole tooth being covered, greater tissue sacrifice was required. This is particularly useful when the bridge abutment is being made.

The technique of the method is as follows:

It may be described under two separate processes, viz., first, the preparation or shaping of the tooth with the taking of impressions, and second, the making of the crown from the impressions in the laboratory. The ultimate setting of the crown needs no description.

In the preparation of the tooth we have to deal with two classes of cases, viz., the tooth which requires a crown for its own conservation, which, of course, presents a tooth greatly impaired by caries, and the case of a molar or bicuspid, which is to be covered to serve as a bridge abutment. The latter we will assume to be perfect, for the sake of description, but this is rarely the fact, for usually fillings more or less extensive are present, which simplify the work.

In the mouths of patients highly susceptible to pain very sensitive teeth may have pulps removed. This, however, is permissible only in matured teeth. Such devitalization is in actual practice rarely required, although quite justifiable when indicated by the conditions.

As the crown is to be made entirely in the laboratory from impressions, the preparation should proceed with the end in view that an impression is to be taken. The tooth is first shortened by removing with engine stones one-third of its occlusal end. Thin disks in the straight hand-piece are now employed, to remove the mesial and distal surfaces,.and similar disks and saucer-shaped stones in a right-angled hand-piece are used to reduce the buccal and lingual surfaces, as well as the remaining sharp angles. A sharp shoulder aproximately one line in width is left at or near the cervix, preferably just short of it, against which the finished crown is to coapt flush. All sides are to be well beveled or converged to the occlusal end. In cases where extensive loss of tissue has already occurred, the judgment of the operator will retain and properly shape the remaining portions along the lines above set forth. It should be remembered, however, that an astonishing deal of retentive power exists in even slight projections, depressions and irregularities of surface when exactly and closely covered by an accurately fitting cope in the manner to be described later.

If there is, however, presumed to be insufficient anchorage, provision for from one to three posts in the canals may now be provided for.

In the application of this form of crown to bridge attachment, where a sound tooth is to be utilized, the entire buccal portion of the tooth, including buccal cusps, is preserved. The preparation is along the following lines: The shortening is confined to the lingual half of the occlusal surface, including the lingual cusps. The surface is ground to a step at right angle to the tooth's long axis. With a small thin wheel a groove is now ground mesio-distally in the center of the occlusal surface one line in depth. This groove is now carried over onto both the mesial and distal surfaces with fissure burs almost to the cervix. Let the lingual surface be now ground away, leaving a shoulder near the cervix in the manner before described and extending on to the groove already made on both mesial and distal surfaces. We now have a result which shows a mechanically perfect means of attachment without the objectionable features of the old method of making a so-called open-face crown with overlapping margins under the gum and on proximal surfaces.

The next step is the taking of impressions. First, we take an ordinary bite in modeling compound for a guide to occlusion. Second, we take an impression of the prepared tooth, together with adjoining teeth on either side, in a small tray, with modeling compound, as a guide in reproducing contour. Third, an accurate impression in Detroit Perfection Modeling Compound is taken of the entire prepared tooth, from which the model is obtained upon which to make the cope.

The occlusion and contour impressions are obtained in the usual simple manner. The impression for the cast of the prepared tooth must, however, be true and accurate, which is not a difficult matter. An impression cup is made consisting of a copper band very loosely fitted to the tooth to be crowned, the edge being trimmed to conform to the alveolar border. The copper band is made one-quarter of an inch longer than the projecting tooth crown, and is filled with softened Detroit Modeling Compound and pressed over the tooth crown until the edge of the copper ring reaches the gum. Chilled with cold water, it is removed, and if properly done a sharp impression of the entire crown, showing the shoulder, well defined, will be the result.

The three impressions now go into a box with the patient's name and a date of the next appointment marked on the cover.

This goes to the laboratory and is there completed, the patient not being seen again until it is to be set, or used for a bridge abutment. It will be evident that much time and inconvenience is saved to the patient by not having the matrix conformed directly to the prepared tooth. The operator also, if a busy man, may delegate this work to laboratory assistance, or do it himself at his greater leisure.

The laboratory process is as follows:

The Detroit Perfection Compound impression is invested in a pad of soft plaster, which is trimmed when partly hard, to a square measuring about one and one-half inches. The redundant compound and plaster is trimmed away so as to more clearly show the margins to which the crown is to curve. The trimmed impression and plaster are rubbed with pure talcum powder, blowing out the surplus.

Ames' Brown Crown and Bridge Cement is slowly and thoroughly mixed to the same consistency as for a filling. The soft, putty-like mass of cement is rolled in talcum and pressed over the impression, using sufficient force to make it conform to all the inequalities, producing a strong, perfect cast of model of the original. The cement-covered impression is submerged in cold water and left to thoroughly harden, requiring about twenty minutes. To separate the compound impression and cement model it is well to submerge them for a few minutes in hot water when a knife will very easily pry them apart. The cement model just obtained is invested with plaster in a steel cup called a bed plate, part of the Brewster Inlay Swaging Outfit, the surplus plaster when hard being trimmed off flush with the edge of bed plate; a small piece of wet cotton is placed on the cement model, to remain at least an hour. This is done to satisfy the crystallization requirements of a hydraulic cement, and thereby obtain the maximum strength for model which with the ordinary care in working is quite sufficient to withstand the force necessary in getting accurate and certain results.

Either platinum foil 1-1000 inch or gold foil No. 120 may be used for the matrix. I prefer to use the platinum foil, partly swaging it to place over model, using cotton held in a pair of foil carriers. With the cotton in place, the bed plate and foil are placed in the screw press water-bag swager and partly swaged to place. The foil is annealed perfectly under a blowpipe and swaged this time without using cotton, the untrimmed foil is again annealed and temporarily put aside. A piece of well-annealed virgin platinum plate gauge 38 is swaged and adapted over the same cement model, being particularly careful to have the metal slightly overlap the line the flush or inlayed crown is to cover. The partly swaged foil is again placed on the cement model and finally swaged to place, after which the adapted and trimmed platinum plate is put over the foil and both swaged.

Both foil and plate are removed and flushed between with 22-karat gold solder, the surplus foil being trimmed off. This leaves a perfectly adapted metal cope sufficiently stiffened and rigid to handle in taking the bite for use in building on a tip for occlusion and contour.

This cope will be a perfect fit, providing, of course, that everything has been done according to the laws of mechanics.

The bite which is taken is poured in plaster, separated and trimmed; a small piece of softened modeling compound is molded over the metal cope and the bite pressed into it for occlusion, after which characteristic grooves, fissures and cusps are carved. A Mellote's metal die and counter die is made from carved tip, a gold tip swaged, which is waxed to the cope, invested and soldered with 20-karat gold solder, which allows for any patching with 18-k. gold solder that may be necessary. The polishing is done in the usual way except for the margins which are worked down to with a fine file to prevent polishing beyond the finished line. Rapidly revolving stones are much more uncertain and harder to control.

To my mind the method suggested is a positive improvement in crowning and bridge attachment methods. It makes far greater perfection and accuracy in dental technique, and insofar as it produces results more permanent and hygienic, marks an advance in the practice of dental surgery.—*Dental Review.*

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DOES THE "LEAKY" FILLING LEAK?*

BY J. EDW. LINE, D. D. S., ROCHESTER, N. Y.

Whether in practice for one year or for a dozen, the general practitioner is ready to enter it as his judgment, based on careful observation and some experience, that a more or less deeply shaded halo or border of mourning around a gold filling is proof that somewhere about the margins of the cavity the material and tooth are not in contact, and that the oral secretions have access to the deeper parts of the artificially filled excavation. That the dark halo or border mentioned is not infrequently due to the cause usually assigned is conceded; but that this is the case in even fifty per cent. of affected teeth may well be doubted.

Where non-contact of material with tooth can be demonstrated we find, if the conditions are not modified by repair or renewal, that the cloudiness about the filling increases in all directions, and also, as a characteristic, that it is continuous with the similarly clouded appearance that leads to the periphery of the tooth and filling; in other words, to the margin of the cavity. We speak of this as a "characteristic" of the filling that leaks, for such appearance is totally absent in the "leaky" filling that does not leak. Another feature of the filling that leaks is the progressive disintegration of the tissue of the cavity-wall, dentine or cement, the enamel usually suffering later through crushing, and this for want of its normal dentinal support. And still another feature suggests itself in the fact that on removal of the filling that leaks, the deeper parts of the cavity are found to be soft and moist, a condition of things never met with in cavities that merely wear the badge of mourning, but do not leak, and never have.

By way of introduction to the special phase of the subject in question, it is desirable to glance at the hard tissues of the teeth, their relations to each other, and the way in which they are put together.

Of the three hard tissues, the dentine, covered by enamel and cement, constitutes the bulk of the tooth. Enamel may be stripped from cement by means of acids, and both dentine and cement thus obtained remain practically intact except as to their inorganic constituents. If cement could be stripped from dentine after the manner of enamel, the ivory element of the tooth would present to the eye a roughened, granular surface, characterized by Huxley, when describing the beginnings of dentinal formation, as "the no-man's land of calcification." This rough, granular-surfaced layer is so co-extensive with the surface of the dentine—covers, is in close touch with and a part of it. It is known as the granular layer, the "stratum granulosum" of those who prefer dead languages, even when handling a live subject.

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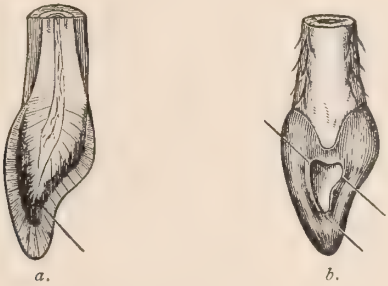
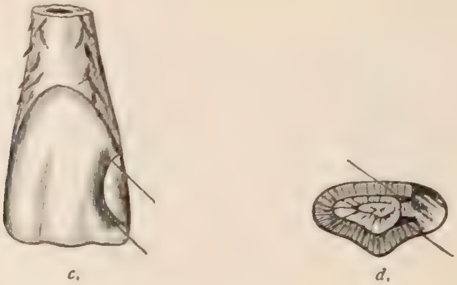
*Read before the Seventh (N. Y.) District Dental Society.

NOTE.—"Halo" is usually defined as "a circle of light;" the halos referred to herein are better described as "approximate circles of dark."



a. Incisor cut longi-mesio-lingually. The dark part within the enamel shows diagrammatically the dead granular layer and adjacent dentine. *b.* Proximal cavity (filled) with cloudiness at short distance from cavity margins, due to dead tissue beneath enamel.

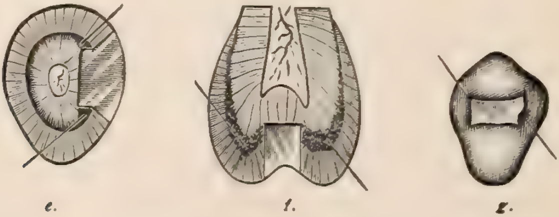
To the student of histology it has small meaning unless he has at least looked into embryology. This granular layer gives no hint of a membrane, and yet it marks the boundary in enamel-covered teeth between dermal tissue, as represented by the tooth pulp and its product, and epidermal structure, as represented by the enamel; it is a good example of place occupied by a structure that gives no hint as to its ancestry. And yet it corresponds perfectly as to position with tissue, or the semblance of tissue, known as basement membrane wherever epithelial and connective tissues are apposed, as in the skin, mucous and serous membranes. And while it may not be membrane in the true sense of the term—that is, a tissue separable by mechanical or chemical means from tissue to its right and left—it may be optical, and as such appreciable because of or through this apposition of contiguous tissues; in other words, their mere contact. Suffice it to say that whether a structural tissue or only the appearance of such, its position and extent is clearly betrayed by the granular layer.



c. Incisor showing cloudiness to left of filling; due to dead dentine forming part of deeper cavity-wall. *d.* Transverse section of *c.*

Passing from further consideration of this localized layer of partially calcified tissue to the tooth as a whole, we call to mind that normally it is translucent; deprived of its source of nutrition —the pulp—it is opaque; that this opacity is directly as the relative quantity of organic matter is high as compared with inorganic, and that, finally, this opaqueness is inversely as the age of the tooth at the time of the death of the pulp. To make this a bit clearer, if possible, the more organic matter the greater opacity of the tooth, the deeper its shade as compared with its neighbors. Again, the younger the tooth at the time of death of the pulp, the greater the opacity—the deeper the shade, a condition that grows worse and worse with advancing years in that particular member.

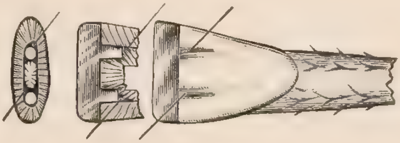
Now this absence of translucency, this deepening of the shade of the tooth, simply means death of the dentine; also of whatever



e. Proximal cavity (filled) in bicuspid; lines point to dead tissue cut off from direct communication with pulp. *f.* Bicuspid showing dead tissue beneath enamel. *g.* Grinding-surface aspect of *f,* with cloud effect on all sides. Common in young teeth, also in adult teeth of poor dentinal structure.

of life is possessed by the enamel, whose nutritive supply comes by way of or through the dentine.

What is true of the tooth as a whole is true also of its parts; hence we find the granular layer, when exposed to the oral secretions, dead, and later the subjacent dentine, and with this death not only opacity of the overlying enamel, but actual discoloration. The course of decay may be in part directly across the dentinal tubules; this cuts off the outlying tissue, and as a result it dies and discolors. The same thing happens in a degree when cuts are made transversely to the dentinal fibers in the preparation of a cavity for filling, say from the mesio-incisive angle of a central or lateral. The part cut off dies of starvation, with the appearance, sooner or later, according to the structure and age of the tooth, of a cloudlike patch in the isolated district.



h.

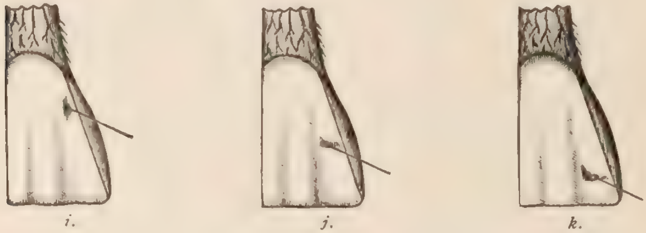
h. Lower incisor shod with gold, anchored by means of Mack's screws; vertical and transverse sections. These screws necessarily cross-cut the dentinal tubules; death of injured tissue follows, the cloud-like effect showing through the enamel.

That this is due to structure and age of the tooth, and wholly independent of defects between tooth and filling at the cavity margins, is proved by explorations, by observation, by the absence of communication between the discolored patch and the periphery of the tooth, and on removal of the filling by the practically perfect dryness of the deeply shaded tissue, and in many cases by its equal density with tissue closely approximating it.

In the case of gold filling there is no contribution by the filling material to the tooth tissue discolored—the gold is as bright on removal from such conditions as on the day of its introduction.

In the case of amalgam the conditions are wholly different. The surface of the material in contact with the dentine undergoes a chemical change, the expert tells us; the silver is acted upon by sulphur from the dental tissue, yielding silver sulphide, a black precipitate that adds materially to the off-color normal to the tissue alone. The same thing may be said, in part at least, of tin.

Cement, while intact as a filling, adds nothing to the shading dependent upon death of the tissue; in fact, it may be made to materially modify the color scheme by using for the first layers a very thin mix, and working it into thoroughly dried tissue.



i. Incisor showing effect of patch of dead dentine adherent to enamel forming part of cavity-wall. *j.* Wrinkle in gold, or slight space between two cylinders; air in confinement. *k.* Angle intended for incisive anchorage filled with dust from bur and excavator.

All kinds of results are obtained with gutta-percha stopping; its varieties and the uncertain conditions under which much of it is worked mitigate ill effects at one time, aid and abet it at another.

In closing, attention may be called to cloudiness about parts of a filling, due not to the presence of dead tissue nor to leakage, nor to a precipitation of filling material, but to the absence of filling material itself. The operator may have failed to carry his gold to the full depth of the pit for anchorage, or overlooked an out-of-the-way corner; or, again, he may have clogged and wrinkled his gold, or failed to condense to the limit two or three cylinders that were a bit too hard at the start, with the result that he has the appearance of leakage, due wholly to want of contact between filling and cavity-wall.

To sum up: The so-called "leaky" filling does not leak. The appearance of leakiness is really due to dead dentine beneath the enamel; that this dead dentine is chiefly in the region of the granular layer; that it may be any dentine cut off by decay or by means of an excavator from its nutrient supply.

This appearance is intensified by chemical change in and precipitation from the surface of the filling.

It is wrinkled under clear enamel by air spaces chargeable to the operator in his failure to effect contact of filling material with the cavity-wall.—*Dental Office and Laboratory.*

EXPERIMENTS AND OBSERVATIONS ON THE WASTING OF TOOTH TISSUE, VARIOUSLY DESIGNATED AS EROSION, ABRASION, ETC.*

BY W. D. MILLER, D. D. S., M. D., PH. D., SC. D., BERLIN, GER.

There has not been for years any doubt in my mind that most cases of wasting observed in our practices are due to mechanical action—which means in particular the action of the toothbrush combined with tooth-powder.

This conviction has been confirmed by observations made during the last few months. * * *

With some of the much-extolled preparations on the market it is quite easy, by applying the brush as nearly as possible in the same manner as it would be used in the mouth, to cut the tooth half through, exposing the pulp, inside of two hours.

I was not satisfied with examining the preparations microscopically, but where there was any doubt I tested them by brushing the teeth with them. Of the dentifrices examined a considerable number cut the teeth rapidly, while nearly all the others cut the teeth to some extent—least of all that I have examined, one which consists almost wholly of sodium bicarbonate. I was surprised to find that even precipitated chalk wore the dentin away rather rapidly—but this one can understand in view of the fact that the substance consists of a mass of fine crystals, which, although they are very small, are still sharp, and sufficiently hard to abrade the dentin. Prepared chalk acts upon the teeth with a rapidity depending upon the amount of impurities which it contains. We shall find on washing out prepared chalk that among different preparations some contain considerable quantities of remains of shells and other gritty substances, which make them unfit for use as tooth-powder. Other preparations which are comparatively free from these impurities act more slowly upon the dentin. Powdered tartar wore away a very shallow notch in a tooth in the space of four hours; soap produced a slight but clearly visible effect; saliva, as well as water, barely more than polished the surface. Still, on brushing three teeth, set in sealing-wax, continuously for six hours with a new, moderately stiff brush, the margins

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*This excellent article appears in full in The Dental Cosmos, January, 1907. In giving these extracts we have left out much of the experimental details giving the principal observations and deductions.—EDITOR.

of the scratches caused by the forceps in extracting were smoothed off, so that a certain slight effect may, after all, be produced.
* * *

With a brush wheel two inches in diameter, revolving with moderate rapidity, I wore away the greater part of the enamel of the central incisors in an upper denture in ten hours. Wedge-shaped defects were produced, extending through to the pulp-chamber, and on the left central the loss of substance extended along the mesial approximal margin two-thirds of the distance to the cutting edge of the tooth. I did not attach any importance to this result, as the conditions of the experiment differed too much from those actually present in the mouth. More trustworthy results were obtained by use of a toothbrush mounted horizontally, and run by a motor at a rate of 240—460 oscillations per minute, which arrangement is referred to when I speak of the motor brush. In most of my experiments, however, I adopted the more natural and more reliable method of brushing with the hand—at an immense sacrifice of time, it is true, but still I think that the sacrifice was warranted by the importance of the subject. My assistant and I have spent during the last year an average of sixteen hours a day, and altogether, on a very moderate estimate, 10,000 hours on the work here recorded.

As for the question at present under consideration, I found that on brushing the left side of a lower denture with a much-used English tooth-paste, the whole of the enamel and the dentin of the buccal surface of the canine and bicuspids was brushed away, exposing the pulp-chamber in eighteen hours. The molars were deeply notched. This would correspond to brushing each half of the dental arch, above and below, for ten seconds daily for eighteen years. Some brush considerably more and some considerably less than this. In this experiment enamel, dentin, and gold wore away with about equal rapidity. * * *

From these experiments it follows that the enamel is certainly susceptible to the action of gritty tooth-powders, and that within a reasonable length of time.

We may put it down as an axiom that anyone who brushes his teeth once daily *thoroughly,* using a gritty tooth-powder, will invariably wear away his teeth at the necks inside of a very few years, *unless they are protected by healthy gums.* The wearing away will gradually extend upon the enamel, and in the course of ten to twenty years considerable portions of the enamel plate may be destroyed. It is to be noted in this connection that the enamel, while being worn away, may preserve a high polish, and it may even escape the notice of the dental practitioner that the plate of enamel is gradually becoming thinner. I have had dentists say, "I have been using a gritty tooth-powder for ten or twenty years, and I have no wasting;" yet a careful examination with a magnifying glass has shown the worn surface readily recognizable by anyone who has made a study of this subject; and looking at the tooth from the cutting edge, we may find the plate of enamel as thin as paper. As a matter of fact, we seldom notice that the enamel is wearing away until the whole plate is broken through and the dentin exposed. A case recently came to my notice in which a young lady, who is very proud of her white teeth, had, by a vigorous use of Chinese tooth-powder, consisting chiefly of pumice, very perceptibly worn down the enamel of her front teeth, inside of three years.

It must also be borne in mind that there is a vast difference in the manner in which different people brush their teeth. In fact, there are about as many ways of brushing the teeth as there are people to brush them. One patient, suffering from abrasion, told me that he often spent as much as five minutes over his teeth; and one lady assured me that she devoted one hour daily to the care of her teeth—a rather strong exaggeration, no doubt. Others perform the whole operation inside of fifteen seconds. Some charge the brush with a great quantity of powder, others only dip the tip end into it, others again use powder only occasionally, and many not at all. Some run the brush horizontally along the necks of the teeth, some diagonally from the cutting edge of the incisors across to the neck of the first molar. The manner of holding the brush and the shape of the teeth are also factors of importance; likewise the inclination of the teeth to each other and to the alveolar process—as has been pointed out by S. P. Mummery. The only pronounced case of wasting of enamel I have met with in an experience of twenty-two years in a dental clinic was that of a man who closed his teeth when he brushed them. The upper row closed over the lower, and formed a channel along which he worked the brush backward and forward, and in the course of years he wore away a great part of the enamel of the lateral incisor, canine, and bicuspids of the left side of the lower jaw, using cigar ashes and powdered oyster-shells as a tooth-powder.

Almost invariably the wasting will be found to attack the prominent teeth in the arch most severely, and will not be found on those teeth which are not reached by the brush. This fact is, however, modified to some extent by the shape of the teeth, as indicated above. If the labial surface of an incisor be markedly convex, we shall find in passing a brush over the surface horizontally that the bristles divide in the middle, and spread out toward the neck and the cutting edge of the tooth. The result *may* be that we shall get wearing at the neck and at the cutting edge, while the more prominent point of the tooth remains comparatively free. So, too, if a tooth be so set as to make an angle with the alveolar process, we shall find a tendency of the bristles to work up toward the margin of the gums, with a corresponding effect at this point; but wherever a tooth is, for instance, rotated on its axis, so as to make one margin stand higher than the other, this margin will be more severely attacked, in fact it will often be the only margin affected. The same is also true of experimental wasting. It is sometimes said that teeth which stand inside of the arch are subject to wasting, and so they are. If we fix three teeth in plaster of Paris—the middle one considerably lower than the other two—and brush them, we shall find the middle tooth becoming worn as well as the others, but not to the same extent, and that too is the case in natural wasting. We never find a tooth which lies lower than its neighbors as strongly cut as they, unless it be a case in which there has been a change in the position of the teeth; but such a case has never come to my notice.

A sufficiently vigorous use even of prepared chalk will tell upon the teeth in the course of time. In a case of severe wasting, which had been gradually progressing for thirty years, nothing more gritty than creta preparata could be made accountable. The patient used this three times a day, and so vigorously that she wore away *two brushes every month.* No wonder that the teeth also suffered. The *condition of the toothbrush*, by the way, may sometimes give us a clue to the cause of the evil, and when we find the bristles wearing down rapidly we may be pretty sure that there is a gritty powder, and vigorous usage back of it, and that the teeth are wearing also. Anything which wears away the brush will also wear away the teeth, particularly the dentin. A brush that has been used with powder so as to cut a tooth through to the pulp-canal will show but slight wear, and in brushing away the entire enamel and a good part of the dentin from the facial surface of five teeth, only two brushes were required. In these bristles were worn to within one-quarter inch of the ivory. * * *

A toothbrush used *without powder* continuously for six hours in brushing three teeth set in sealing-wax did not show a trace of wear.

Taking it all in all, I have come to the conclusion that we have formulated our question regarding wasting of the teeth wrongly. It should not be, Why do some people have it? but, Why do not many more people—in fact why does not everyone who uses a brush and powder—suffer from it? Here the answer is comparatively easy to give. So long as the necks of the teeth are covered by healthy gums, they are effectually protected against the action of the brush, and it takes a number of years to wear away the enamel sufficiently to expose the dentin; before this time, the wear, although it may be in progress, escapes our notice. Then again, as already pointed out, it is only a small minority of our patients who really give their teeth a thorough brushing, even among those who claim to be particularly scrupulous in this respect; and an occasional brushing only, with a little powder for a few seconds, will be a long time in producing any appreciable effect.

A general impression seems to exist that wasting is a lesion affecting chiefly teeth of good structure, well-developed, yellow, so-called hard teeth. My observations have not always tended to support this impression. I think we may say that, in general, teeth badly affected are of the yellow grade, though I have noted very many exceptions. It appears to me, moreover, that the chief reason for the impression that wasting is characteristic of yellow, hard teeth is to be found in the fact that this lesion is observed chiefly in advanced age, and that the color of the teeth likewise becomes darker as age advances. Nevertheless, I have given attention to the question as to whether teeth of different color are susceptible in different degrees to mechanical action, and have made many experiments relative to it. The teeth were fixed in a row, the light and dark shades alternating, and subjected in some cases to the action of the motor brush, in others to the hand brush.

* * *

We may accordingly say at present, that while there seems to be a slight difference in the resistance which the dentin of different teeth offers to the action of the brush and powder, further experiments will be necessary before we can come to a final conclusion regarding this point.

With regard to the enamel, there is no doubt that its structure has great influence upon its susceptibility to mechanical action. I have seen badly developed, chalky spots in the enamel wear away much more rapidly than the surrounding normal tissue. Also in the case of a hypoplasic tooth, I found on splitting it into halves and brushing the split surfaces with pumice, that the enamel wore away faster than the dentin, whereas, as a rule, dentin wears away approximately fifteen to twenty times as fast as does enamel.

* * *

The enamel offers the greatest resistance to friction with powders when it is applied to the free surface and to the *ends* of the prisms. In case of wedge-shaped defects, either natural or experimental, which encroach upon the enamel in a plane nearly parallel with the direction of the prisms, and in which the friction is consequently applied to the *sides* of the prisms, we find the enamel yielding about as rapidly as the dentin. * * *

As a result of the above experiments and studies, I have been more and more confirmed in the opinion that the majority of cases of wasting met with in daily practice are due chiefly to the action of the brush in conjunction with tooth-powder and that compared with this one, other mechanical agents are of minor importance. The question now arises, What are the chemical agents which may be concerned in the process, and to what extent are they responsible?—*Extracts from Dental Cosmos.*

AN INTERESTING HISTORICAL SKETCH OF DENTISTRY IN EARLY TIMES.

References in literature point to the existence of a well-developed form of dentistry among the Egyptians, in corroboration of which we are referred to the gold-filled teeth which have been found in mummies. This observation is not convincing as the Egyptians, in embalming the bodies of their departed, covered the tongue and teeth with thin gold leaf for the purpose of preservation. However, examination of many ancient skulls, notably an Etruscan skull, exhibited in the museum of Orvieto, give evidence of early dental practice. The famous papyrus of Eber gives a list of remedies, such as liverroot, dough, honey and oil, which are indicated in certain dental affections. It may be assumed that artificial teeth were used in those ancient days from the fact that a favorite mode of punishment designed to bring disgrace upon the culprit, was the extraction of a front tooth. Therefore, when a tooth was lost through accident or disease, to avoid this disgrace, it became necessary to resort to the employment of artificial substitutes. The ancient Egyptians were skilled mechanics and able to model teeth from wax, wood or clay, and the perishableness of this material would account for the scarcity of proof of ancient dental practice.

We learn from the Bible that when Moses led the chosen people through the wilderness to the Holy Land, he was obliged to issue penal and hygienic laws to protect the people, who were already broken in health from slavery, from the ravaging pestilences. It is notable that in these careful regulations concerning the nourishment, clothing and cleanliness of the body, no mention is made of the teeth. I can only account for this by the supposition that the old Hebrews had perfect teeth, a fact possible, considering the enormous difference in races in regard to the relative frequency of caries. We must not conclude, however, that this race neglected or disregarded their teeth, for Moses, elsewhere in the laws, speaks thus: "And if any mischief follow, then thou shalt give life for life, eye for eye, tooth for tooth, hand for hand, foot for foot, burning for burning, wound for wound. And if a man smite the eye of his servant or the eye of his maid that it perish, he shall let him go free for his eye's sake. And if he smite out his man-servant's tooth, or his maid-servant's tooth, he shall let him go free for his tooth's sake."

It is indeed wonderful that so much importance was attached at that time to a complete set of teeth, inasmuch as the loss of a tooth was judged equal to the loss of an eye. Not until thousands of years later did man realize the eminent importance of teeth for the body economy. The ancient Greeks, if one may judge from the sparse literature of their time, seem to have possessed better teeth than the Egyptians. Their methods for the relief of toothache were very primitive, and consisted in the fasting of the patient and in the worship of their gods. They also sought to alleviate their dental pains through various slight-of-hand tricks and music.

With Hippocrates (460-355 B. C.) began a great revolution in both medicine and dentistry, and it is highly probable that the first reform in the latter consisted largely in the extraction of teeth. It seems that only loose teeth were drawn at that time since in the Temple of Delphi a pair of forceps were found which, being made of lead, could not possibly have been employed for the extraction of soundly-imbedded teeth. Hippocrates already at that time laid great stress upon cleanliness of teeth, and prescribed the following powder, which had perhaps a mystical, as well as a physical effect: "A charmed rabbit's head and three charmed mice ground into a powder." He recognized various dental affections with serious sequelae resulting from neglect of the teeth, and writes as follows: "If gangrene of the teeth be accompanied by fever and delirium the result is fatal. If, however, the patient should recover, ulceration remains and the bone is destroyed." He illustrates the story by the following case: "The son of Metrodor developed acute gangrene of the jaw after a toothache. The swelling of the gums became purulent and the teeth and the bone were destroyed."

The oldest information on Roman dentistry is found in the laws of the Twelfth Tablet, which states: "Add no gold to the corpse, but if the teeth be already bound with gold, it is not unlawful to bury or burn the body."

According to Geist-Jakobi, we find the founder of dentistry among the ancient Romans, namely the learned Cornelius Celsus, who lived at the time of Christ. In his celebrated work, "Re de Medica," he devoted certain articles to the pathology and therapy of teeth, subjects which at one time were combined with general medicine. He was perhaps the first to practice the filling of carious teeth. He inserted in the cavity pieces of slate wrapped in cotton, endeavoring thus to check the caries. The cause of caries was sought for even at that time, and Scribonius Largus (50 A. D.), advances the theory that worms destroyed the substance of the teeth. Hence the parasitic theory reaches back to that age.

A true investigator of the combined medical and dental science was Claudius Galenus (131-200 A. D.). This skilled physician of that ancient age presented some new and accurate observations on the anatomy and pathology of the teeth. He accurately differentiated between disease of the pulp and that of the root-membrane. He reports from personal observation that in a painful tooth he plainly felt a pulsation like that which occurs on inflammation of soft tissues, and was "surprised that a tooth also could become inflamed." Further, he says: "When I again had toothache, I realized that not the tooth but the inflamed gum was the cause; from which observations I learned that a certain pain may have its seat in the tooth and another in the gum.

For the preservation of the teeth Galenus prescribed a large number of tooth-powders and mouth-washes. In the middle ages, when culture suffered retrograde changes in Greece and Rome, science received contributions from the Arabians. In our specialty, however, this did not amount to much. Dental therapeutics were thus enriched by adopting Abulkasa's method of checking the toothache by means of a hot iron with which he probably cauterized the pulp, and by employing arsenic.

If we desire to learn of more modern and practical results, we must return to Italy, where, in the year of 1500, Johannes Arculanus energetically recommended the conservative treatment of diseased teeth. He was the first to fill teeth with gold for the sake of preserving them.

Dentistry received a marked impetus at the end of the sixteenth century, through Ryff, who wrote a book, divided into the following parts: 1, The Eyes; 2, The Teeth; 3, The Teeth of Suckling Infants. In this treatise he called attention to the relationship existing between diseases of the teeth and the eyes, and the effects of decayed teeth upon the general health of the organism. With commendable foresight and energy, he urged the people to observe the laws of hygiene, and especially those which concerned the thorough care of the teeth.

Eustachius, who lived in Ryff's time, is closely associated with the embryology and anatomy of teeth. He taught that the tooth was developed from a dental sac, and that the second or permanent teeth were developed from special germs, and not from the roots of the temporary set. He described a number of the elements of a tooth and called attention to the enamel, which covers the dentine like a bark, and stated that the interior of the tooth was filled with a pulp, richly supplied with nerves. He also wrote on the anomalies of teeth and described a case of fourth dentition. It is impossible to describe in detail the investigation of the remaining earlier authorities in dentistry, but I wish to make mention of the most important ones. Highmore (1613-1684) discovered that the superior maxilla was a hollow instead of a solid bone. Leeuwenhoek (1632-1723), by various improvements in the microscope, made considerable progress in dental histology.

A decided advancement was made in 1800, in Frankfort, through Fauchard, who is everywhere honored as the father of modern dentistry. In his epoch-making work of 1728, "Le Chirurgian Dentiste on traite des dents," he laid the foundation for the anatomy, physiology, pathology, and therapy of the mouth and teeth. Founded on these fundamentals, there has arisen a massive structure, the materials of which have been collected from all the civilized lands of the world, the structure of the well-established, although not yet complete, international science of dentistry.—*From Atlas of Dentistry by Prieswerk.*

SUGGESTIONS

TO LOCATE IRRITATING PORTION OF A PLATE.

L. P. Haskell, Chicago.

As it is sometimes difficult to locate just exactly on the plate the irritated spot, place with a spatula a little wet whiting on the spot and put the plate in position, and it is readily seen.—*Dentists' Magazine.*

SEPARATION OF THE TEETH.

J. V. Conzett, Dubuque, Iowa.

In ordinary cases where much tissue has not been lost, a piece of cotton twine knotted between the teeth will give sufficient space. If more space is needed, longer time may be required, and in some cases where the teeth have fallen together badly it may require the wearing of a gutta-percha plug between the teeth for months. But no matter how long it takes, *obtain the space.* Sometimes it is possible to accomplish a great deal with the immediate separator, and in some cases it may be justifiable, but I believe that those cases are rare. I do not believe in the immediate separation for several reasons. The first is, that they are little less than barbarous and inflict needless pain upon the patient, and I do not think that we are justified in inflicting pain when it can be avoided. The second reason is, that in many cases the steel bars of the separators do a great deal of damage to the enamel near the gingival margin, and they are frequently so bunglingly placed that they do a great deal of damage to the gingivae themselves.

I find in making a gold filling that I can in nearly every case obtain sufficient space by malleting my gold against the approximating tooth as I build up my filling, and when the filling is completed I have separated the teeth easily and surely.—*Dentist's Magazine.*

FINISHING OF GUTTA-PERCHA FILLINGS.

W. O. Talbot, Gulfport, Miss.

Gutta-percha fillings should be finished with flat burnishers so shaped as to reach all margins. The instruments should be heated enough to cut the gutta-percha, but not to burn it. The material should be finished to the cavity margin and not pulled away from it.—*Dental Headlight.*

THE UNIVERSAL APPLIANCE.

There are no universal appliances for orthodontia cases, and there never will be. The appliance most suitable for expansion of the crowns of teeth is entirely unsuited to the proper root and alveolar expansion, and so it goes; the apparatus most efficient in one case may be most detrimental in another.—*Dentist's Magazine.*

EXTRACTING WHEN THE HYPODERMIC NEEDLE IS EMPLOYED.

L. O. Green, Chicago, Ill.

Three fundamental rules which must be followed in order to insure the desired results: First, render the area of tissue to be injected asepitc; second, positively sterilize your needle before injecting; third, remove all deposits about the tooth involved, otherwise infectious calculus will be crushed into the tissues by the beaks of forceps during the process of extraction.—*Dental Brief.*

STEELE DETACHABLE FACINGS.

A. P. Burkhart, Buffalo, N. Y.

I was induced two years ago to test the Steele detachable and interchangeable facings. I never worry now over checked or broken facings, consequently I have peace of mind. I feel fully convinced that the Steele facings in variety of molds and almost perfect proportion will greatly aid the artistic bridge-worker.

In using the Steele facing no porcelain is present when soldering, and consequently no checking and discoloration of facings can result; no unsightly gold tips and display of gold between facings, because they are almost uniform in width from incisal edge to neck. Bridges can be inserted immediately after extraction, and later, when absorption of the gums has taken place, the old facings can be replaced with larger ones without requiring the removal of the bridge. Time is thus saved in the construction of bridges, and if repairs are ever needed they can be made easily and quickly without removing the bridge.—*Dental Cosmos.*

PERIODICAL EXAMINATION OF BRIDGES.

A. P. Burkhart, Buffalo, N. Y.

Patients should be thoroughly impressed with the necessity of having bridges examined at least twice a year, in order that if any imperfections exist they may be corrected by removal, which will give an opportunity for careful examination of each abutment, and the performance of such services as will best benefit the patient.—*Dental Cosmos.*

TO REPLACE TOOTH ON BRIDGE.

W. A. Burns, St. Thomas, Ont.

The first thing in repairing a bridge, I take a facing suitable to the case in hand. I drill my holes through the backing, and adjust the teeth in the proper position. Then I have a thin sheet of platinum—there is less danger of burning by solder than gold. Take a pair of pliers. Rub that around the tooth-pin; it will form a tube. Then clip off the pin from the tooth; close up the tooth; put the smallest particle of solder on that with a little borax; bed the tooth in the compound composed of asbestos and Portland cement—I buy it from hardware stores; they use it for covering plumbing. I do not wet the investment, but simply heat it up. Then you have a tooth with two hollow pins in it. Enlarge the hole slightly in your backing. Adjust your tooth. Use your cement if necessary. I use a ball-headed burnisher to spread the tube on the lingual end, and I have an attachment somewhat similar to the attachment on the eyelet in a shoe. It makes a small hole there, which if you are using platinum you can fill with amalgam or with gold. If it is inaccessible you should use amalgam; if it is accessible it is preferable, of course, to use gold. You can hardly tell that the tooth has been replaced. I have been doing that for some years. So far I have found it entirely satisfactory. —*Dominion Dental Journal.*

A METHOD FOR PRODUCING PERFECT JOINTS IN GUM-SECTION PLATES.

R. E. Pretty.

Of late years the tendency to discard the gum-section in artificial dentures seems to be so prevalent that a great many dentists do not use them at all, especially the younger men of the profession. This may be due to the fact that a more artistic assemblage can be secured with plain teeth, and, in many cases, a better articulation with less time. But with such a variety of good gum-section molds, how much more beautiful for "great exposure" are they than the dirty brown, once pink, vulcanite.

The following is a method by which the joints can be made invisible while in the mouth:

This method begins when the case is invested in the first half of the flask, and the plaster investment should only come to the wax border of the plate, and in no case extending onto the wax.

Cut strips of tinfoil No. 40, for each joint, making them one-fourth of an inch wide and one and a half inches long, and lay them over the joints, beginning on the labial surface of the front joint one-fourth of an inch below the porcelain and lapping the end over the cutting edge of the incisors onto the palatine surface of the wax. Burnish the foil well on to the teeth and over the joints. After each joint is so protected, pour the opposite side of the flask.

Heat the flask in boiling water for three minutes and separate. Remove the wax, which will expose both ends of all the foil strips. Mix a thin cement and place on lingual surface of each joint, press the ends of the foil over the cement and joint.

Pack and vulcanize as usual, and on the removal of case from the flask thoroughly wash and dry. Then remove the tinfoil and the joints will be just as clear from coloring matter as they were when assembled on the articulator.

Dry the joints and slightly warm them, and with the wax spatula drop some hot wax into and over each joint. This will better protect them from dirt while finishing than the foil.

I have experimented with tinfoil and cement for two years, using different thicknesses, and I find No. 40 foil best suited for the purpose. The entire method requires only a few minutes of time, and the results will be very gratifying.—*Dental Register.*

PROPER CONTOUR OF FILLINGS NECESSARY.

J. V. Conzett, Dubuque, Iowa.

A tooth should never be filled unless first sufficient space has been obtained to normally contour the tooth and properly reproduce the interproximal space. For if we do not we are doing violence to our professional conscience and a wrong to our patients. It is a frequent practice with me to remove fillings that have been so made and that have caused a great deal of annoyance to the patient, and after a course of treatment to obtain sufficient space, refill and properly contour. In these cases I believe I receive the plaudits of my patients more than for any other class of operations I perform. The destruction of these spaces is not only a source of great discomfort to the patient, but is positively dangerous. The first danger is that of recurrence of decay. If the teeth are not properly contoured and a proper contact with the approximating tooth has not been made by a small contact point, the margins of the cavity will in all probability fall within the area of susceptibility, and as the food and bacteria crowd in between such a beautiful harbor for them, it will not take long to set up a secondary decay that will be far more serious than the first. The second danger is that of gingivitis and pyorrhea, and many teeth have been lost that way, as every man of observation can testify. The gum tissue is crowded out of its place by the teeth falling together, a further irritation is set up by the crowding of food products between the abnormally placed teeth, and the end is soon in sight. The third danger, a rare one, but one that does occur, is the growth of gingival tumors as a result of the continual irritation of food debris.—*Dentist's Magazine.*

GUARDING THE CAVO-INCISAL EDGES OF INLAYS WITH GOLD

C. J. Grieves, Baltimore.

Such cavities in the incisors are usually prepared with the cavity margins at an angle of ninety degrees to the incisal edge, so that the joint will be parallel to the long axis of the tooth. After such fillings have been inserted it has been my experience that the pressure of soft food at this edge will pump out the cement, and consequently we always find the cement washed out to a greater depth at this joint than at any other in the filling. In a short time these walls being unsupported, with both the tooth and porcelain edges exposed to the full blow of the bite, check, resulting in the final loss of a piece of enamel or porcelain, leaving an unsightly crack. When such an accident occurs, and they have occurred in my practice in a short time after the operation, what shall we do? I have found nothing better to do, heretofore, than to remove the filling, and prepare another inlay, which means the destruction of more tooth-structure than any conservative man is willing to attempt. My method now is to divide the incisal edge at the cavo-incisal angle, cutting back into the palatal wall. I make the filling in the usual way and then grind off a bit of the porcelain extending into the step, leaving the cavity supported with sound dentin. The filling between the approximating teeth is supported by the aid of wedges, and with everything in readiness, the cavity is filled with a thin lining of cement, and a small piece of thin DeTrey's gold is laid in the palato-incisal angle, allowing it to extend beyond the cavity. The filling is covered with cement and is pushed into position, the wedges being left untouched until the cement sets, when the gold is burnished off. In this way two layers of cement are utilized, one on the tooth and the other on the inlay, while the gold between them guards the edge in such a way as will prevent any pumping out of the cement from that joint. Furthermore, if the cement does pump out, the joint will not permit of daylight showing through it.

I have found it good practice to place in the palatal edge of inlays a piece of gold foil when cementing them to place. This is put in while the cement is soft, and with the cement on the inlay in the usual way, it is wedged into position, giving a filling made on this principle with as little cement as possible in the joint.—*Dental Cosmos.*

PREPARATION OF THE CAVITY.

J. A. Sherwood, Buffalo, N. Y.

We have been told by a great many who are experts in porcelain work, and more particularly by those who use low-fusing porcelain, that the cavity should be shaped so as to give the matrix that form which will make its withdrawal from the cavity an easy operation. This has been very misleading, and has led to many variations in the shaping of cavities. It has also led to many failures in inlays that have come out after having been cemented, and is responsible for many imperfect margins—the latter being due to displacement in setting because of the shape of the cavity.

You will notice that in speaking of the separation and cutting away of the enamel walls to facilitate the removal of the matrix, I have said that we should endeavor to make such removal as easy as possible, but this does not apply to the shaping of the inside of the cavity. Instead of making the inside of such a shape that the matrix may be removed or withdrawn as easily as possible, shape it so that the matrix may not be so easily withdrawn. To make the cavity of such a shape that the matrix may be withdrawn easily, only means that the completed inlay will be likewise easily dislodged. You are told to make no undercuts in the cavity. Often an undercut may be made without interfering with the easy withdrawal of the matrix in good form, and an inlay made from such a matrix will not come out after it has been inserted. In cavities of the interproximal space, I nearly always try to have an undercut in the gingival wall, and thus instead of having the gingival wall at right angles to the bottom, or pulp-wall of cavity, I secure more of an acute angle. Only one point more under this head of cavity preparation, and that is to make the floor of the cavity flat or of some decided shape, so that the inlay when being set will not shift from side to side and cause imperfect margins because of malposition of the inlays.—*Dental Cosmos.*

PROTECTION FOR FACINGS.

A. E. Matteson.

To prevent "etching" of facings when using twenty per cent. platinum solder, paint the surface with a creamy solution of magnesium carbonate before investing.—*Dental Review.*

EUCA-PERCHA.

J. A. Wells, Shawnee, Okla.

If the euca-percha gets too stiff to work well, add eucalyptol, warm slightly and stir. Add enough to make it of a creamy consistency, and it will remain so for weeks.—*Western Dental Journal.*

SHADING OF INLAY.

J. A. Sherwood, Buffalo, N. Y

I believe that this part of porcelain work is the one least understood, and the one which receives the least attention from those doing the work; and yet the proper shading of an inlay so as to match the tooth-structure constitutes about one-half its merit.

No tooth is entirely of one color, and very seldom are we called upon to make an inlay in which there is only one color. There is one basal principle to be remembered in the shading of an inlay, viz., that the tooth is composed of different structural parts, dentin and enamel, and that it takes its color chiefly from the underlying dentin. The color is reflected through layers of enamel of varying thicknesses, thus giving the tooth variation of color—one blending into the other from the gingival to the incisal portion. Consequently one must produce in the inlay a foundation corresponding to the lost dentin. Over this must be laid the enamel of the colors that are present in the tooth from the gingival to the incisal areas—or in whatever direction the inlay follows. To produce the most artistic results along this line there is, in the opinion of the writer, no porcelain so admirably adapted as Brewster's. It is composed of a foundation body of three basal colors which correspond to the dentin, and the enamel in a variety of shades to be placed over the foundation body.

In this connection allow me to speak of the XX enamel, which is a separate Brewster product, and which, having a lower fusing-point than the other, and being more translucent, is admirably adapted for reproducing an incisal portion or corner of a tooth, or, in fact any portion having a highly translucent surface. These porcelains are compatible one with the other, and when an inlay is made by using the foundation body first, fusing over this the enamel, and finally finishing with the XX enamel, a beautiful result is obtained.—*Dental Cosmos.*

Do the right thing or else keep your mitts off.
Do all that needs to be done or else don't begin.
Do the right things at the right time.

—*Western Dental Journal.*

INVESTING CROWNS AND BRIDGES.

Dr. A. P. Burkhart, Buffalo, N. Y.

Indifference to results and slovenly methods employed in investing crowns and bridges produce too frequently unsatisfactorily fitting bridges, and result in checked and broken facings. The habit of pushing a case into a soft and moving mass of investment, which in turn may rest in an uneven or soft surface, such as blotting paper or even common paper, is bad practice. Proper sized boxes—from the common sized sandpaper disk box to well-selected larger sizes—should be used. The boxes, thus nearly filled with investment material, will firmly hold and accurately incase every line and crevice of the invested bridge, or single crown. Gentlemen, save your sandpaper boxes; they are valuable in the investing of single crowns and small bridges.—*Dental Cosmos.*

THE USE OF GUTTA-PERCHA CEMENT IN SETTING BRIDGES.

A. P. Burkhart, Buffalo, N. Y.

I may say this for those who may possibly try to use gutta-percha cement in setting a bridge with four abutments: First, place the gutta-percha in the shells and carry them to position while the crowns are moist. Then remove, and see whether you have enough gutta-percha. If you have not used a sufficient quantity, more can be added, or if there be too much the excess can be trimmed off; then cleanse with alcohol, heat the bridge and try it again, and if this time there be a sufficient quantity of the gutta-percha in the shells, proceed in a similar manner with the caps of the Richmond crowns. Do not be too hasty in trying to set the bridge, lest it may burn the patient's mouth, but heat the bridge slowly according to directions given. After carefully drying the abutments, place a small quantity of the gutta-percha in the aperture of the roots on which the Richmond crowns will rest, and when the bridge is placed in the mouth, if the abutments are free from moisture, the gutta-percha in the caps and roots will unite. If for any reason the bridge does not suit you, in five minutes you can remove it, and this can be done just as readily six months or three years afterward.—*Dental Cosmos.*

THE BOSS TELLS HOW PATIENTS SHOULD BE MANAGED*

BY THE OFFICE BOY.

Dock Measley was in our laboratory one day, and him and the Boss was talking about the best way to manage patients. Dock Measley, he's the young dentist what ust to have an office next door to a livery stable, and flies buzzing in his patient's ears, but now he's in a sky-scraper, and you can't get at him without you sign a card first, and have some kind of a pull.

So them two was talking, and says the Boss, "The main thing is to git the upper hand of your patients in the start, and let them see you won't stand no foolishing."

So just then I let in a lady, and when the Boss he went in the office and seen she was a new patient, he looked so surprised and flustered you could easy see he had imagined it was a hand from the soap factory come to have a tooth yanked. The lady she looked real suspicious at the Boss, like she reckoned he might play some trick on her. Says she: "I've been to three dentists already this morning, and none of them has proved satisfactory. I've got a tooth that's ached awful, two nights. I ain't got time to have it filled, and all I want is something put in it so as it won't ache for two or three months while I'm away at the sea shore. It ain't necessary to scrape it out, and I ain't agoing to have it fussed with. Nobody mustn't touch it.

You've got to fill it just as it is with some soft filling that won't push against the nerve. Now you do the way I say, and I'm willing to pay you just the same as if you'd pulled the tooth. If it's all satisfactory, in a day or two I'll send you half a dollar, so that you won't be kept waiting for your pay."

The Boss he assured her he was offul gentle, 'cause it always hurt him worse than it did the patient to strike the nerve. He ast her to set in his chair, but she said couldn't he do just as well in the rocking chair she was already in, 'cause it made her hysteericky to set in a dental chair, and she knowed her doctor would say she mustn't. It took the Boss a long time to persuade her, but at last she set down, and he got a clean tidy to put on the headrest.

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*Presented at Ohio State Dental Society, December, 1906, by Dr. Frank W. Sage, Cincinnati.

She ast him right away what was he agoing to do with that, and he had to let her take it and handle it, and smell it like it was a horse scared of a newspaper. Then she had to take the mouth-mirror in her hand to see if it wasn't some kind of a trick arrangement, and she groaned, and said why didn't he put something in, cocoaine or something, and she must rest, and have the window opened.

Then she wouldn't give up the mirror 'cause she said it was the worst thing of all, and she hated it.

The Boss, not being able to get the window open, fanned her a spell, and her agroaning, and saying he'd started the tooth aching again, with his dilly-dallying, and when would he ever be through. She said she wouldn't have him use the syringe, and she could rench her tooth out herself, just as good and better. So she took a mouthful of water and sloshed it around, and gargled her throat, and squirted it out on the Boss's foot. She said why didn't he do like she'd told him, and there wasn't no excuse for such fussing and putting it off, and she reckoned she hadn't found the right dentist yet. That seemed to give the Boss an idea; says he: "I must call in my pardner for a consultation. Two heads is better than one, and this is an offul complicated case, and may be he can find out what's the matter."

With that he turned and winked and frowned to me to go bring in Dock Measley, and I never was so took aback in my life, hearing him call Dock Measley his pardner. I never knowed him to tell a lie before, and I don't believe he'd have done it this time, only there wasn't no honorable way out.

Dock Measley he must have been listening in the hall, for he come right away, without waiting to be called. The lady was trying to get out of the chair, but he tipped it way back, so quick and sly she didn't seem to be able to get up, being tolerably fat. Says he, "Good morning, Madame"—real polite and pleasant, and at the same time taking the mouth-mirror away from her. Then he caught her eye and looked real stiddy at her, a little spell, and says he, "Open your mouth." Dock Measley is one of the kind you can't bluff, and when he tells people to do things, they do them right away, and no stopping to ask questions.

The lady she opened her mouth, real sort of quick, and says he presently, "This tooth can be saved, but we ought to let you know it is going to cost something for treatments. My pardner has given you half an hour of his time, so this first treatment will be the most expensive."

Says the lady, real respectful, "How much?" and says Dock Measley, "Three dollars. After this, however, the fee for each treatment will be less." Says the lady, "I reckoned it wouldn't be only two dollars, Dock."

Says Dock Measley, "You missed it by exactly a dollar, which wasn't so bad. The fee will be three dollars."

Then he pushed her head back and burred out the cavity, and says he, "The pus is flowing freely; that will relieve you. Spit!"

So she spit smack into the cuspidore, and he pushed her head back again and put something in, and sealed up the cavity. "That will do for the present," says he. "The tooth will need three or four treatments before it can be safely filled. Come again at nine tomorrow."

Then she told him she had to go away two days later, and says he, real prompt, "You will have to defer your trip a week or two. There is a risk of blood-poisoning, and you must remain and receive careful attention. We cannot permit our patients to take risks possibly involving their lives and our reputations."

Then the lady she said she reckoned he was right, and she'd have to wait, and she paid him the three dollars and asked him real anxious like when was it he had said she was to come again, 'cause she didn't want to have anybody making engagements for her that might hinder. Then she ast him had he some of his cards, so as she could send her friends to him. Dock Measley he looked sort of razzled an instant. But if there's any dentist that's got presence of mind in a tight place, it's Dock Measley. He reached in his pocket and handed her a bunch thick enough to stall a freight train. So then the lady she thanked him, and went out kind o' wriggling her bustle, like she afeard Dock Measley didn't wholly aprove of her, and she'd got to git on the right side of him. And she never looked at the Boss.

After she'd went out said the Boss, kind of like he wasn't so well pleased: "I'd like to know where I come in, on this deal. What did you give her them cards for? What's the matter of *my* cards!"

Dock Measley he laughed, like it was a good joke. Says he, "Why, I thought of that, to tell you the truth, but you see I sized the matter up this way; I reckoned she'd git round to me presently anyhow, in the course of her shopping. But see here, I'm going to do the fair thing by you. There's fifty cents. It's half a dollar more than you'd have got out of her, but for your taking me in pardners."

SOCIETY

MONTANA STATE DENTAL SOCIETY.

The annual meeting of this society will be held in Helena, Mont., April, 12 and 13, 1907.

W. E. TRERISE, Sec'y,
Helena, Mont.

SOUTHWESTERN MICHIGAN DENTAL SOCIETY.

The annual meeting of this society will be held at Battle Creek, Mich., April 9th and 10th.

C. W. JOHNSON, Sec'y,
Lawton, Mich.

NEBRASKA BOARD OF DENTAL EXAMINERS.

The next meeting of the Nebraska Board of Dental Examiners will be held at the state house in Lincoln, Nebr., May 29, 30 and 31, 1907. All applicants for examination must have their applications in the hands of the secretary five days before this date.

For further information address

DR. C. F. LADD, Sec'y,
1241 O. St. Lincoln, Nebr.

LAKE ERIE DENTAL ASSOCIATION.

The forty-fourth annual meeting of the Lake Erie Dental Association will be held at Hotel Rider, Cambridge Springs, Pa., on the 21st, 22d, and 23rd of May, 1907.

Upon our program this year are men of exceptional merit, and we are pleased to invite all reputable dentists and their friends to this beautiful place, for convention purposes.

V. H. McALPIN, Sec'y,
Warren, Pa.

ARKANSAS STATE BOARD OF DENTAL EXAMINERS

The Arkansas State Board of Dental Examiners will hold examinations at Eureka Springs, May 27-28, 1907.

A. T. McMILLIN, Sec'y,
Little Rock.

ARKANSAS STATE DENTAL ASSOCIATION.

The Arkansas State Dental Association will hold its annual meeting at Eureka Springs, May 29, 30, 31, 1907.

HENRY P. HOPKINS, Sec'y and Treas.,
Argenta, Ark.

VERMONT STATE DENTAL SOCIETY.

The thirty-first annual meeting of the Vermont State Dental Society will be held in Burlington, Vt., May 15, 16 and 17, 1907.

The Vermont society has in the past held most successful meetings, and we have every reason to expect that this will surpass any previous one, as a very interesting program has been prepared by the committee, and will be mailed in due time.

Vermont has the largest per cent. of membership in its state society of any state in New England, and we hope to see every dentist in the state who is eligible as a member.

THOMAS MOUND, Sec'y,
Rutland, Vt.

FIRST AUSTRALIAN DENTAL CONGRESS.

I have to inform you that the First Australian Dental Congress will be held in Sydney—at the medical school of the University of Sydney, and the United Dental Hospital, in February, 1907, 4th to 9th, inclusive.

Dr. Alfred Burne has been chosen president, who, in co-operation with many hard workers in the profession, hope to make this, our first attempt, a success.

Contributions of interest are solicited from members of the profession abroad, and will be sincerely appreciated. The proceedings will be published in book form.

This announcement, which should have been forwarded to you some time ago, was inadvertently overlooked; an apology is herewith tendered for the oversight.

W. H. WESTON, Sec'y Gen'l,
Sydney, N. S. W.

CONGRESS OF STOMATOLOGY.

A congress of stomatology, styled the First French Congress of Stomatology, will take place in Paris from 1st to 5th of August, 1907,

The committee of organization is as follows: Honorary presidents, Drs. Gallippe and Redier; president, Dr. Cruet; vice-presidents, Drs. Claude Martin of Lyons, and J. Ferrier; general secretary, Dr. Chompert; treasurer, Dr. Gires.

The congress will be open to all French and foreign doctors of medicine who are interested in dental and oral science.

Subscriptions and communications should be addressed to the general secretary, DR. CHOMBERT, Sec'y,
182 rue de Rivoli. Paris.

RESOLUTIONS ADOPTED BY THE AMERICAN SOCIETY OF ORTHODONTISTS.

New York, December 29, 1907.

Resolved, That in the opinion of the members of the American Society of Orthodontists, the practice of paying a commission, honorarium, or any sort of fee, in consideration for the reference of a patient, is both unwarrantable and unprofessional; and be it

Resolved, That the payment of any such commission, honorarium, or fee, by any member of this society, shall be sufficient cause for the expulsion of said member, by vote of the society, after conviction; and further be it

Resolved, That in case of co-operation in the care of a patient between a general practitioner and an orthodontist, there shall be no division of fees, but each man shall render a separate bill for his personal services.

FREDERICK S. McKAY,
Secretary.

NEW JERSEY STATE DENTAL SOCIETY.

The thirty-seventh annual meeting of the New Jersey State Dental Society will be held in the Auditorium at Asbury Park, N. J., commencing 10 a. m., July 17th, and continuing through the 18th and 19th. The headquarters will be at the Hotel Columbia, with the rates of $3.50 and $4 per day, and all reservations must be made before July 1st. Prominent dentists have signified their intention of reading papers, and the clinics will be of a new and novel nature.

Clinic committee is in charge of Charles H. Dilts, D. D. S., of Trenton, N. J. Exhibit committee in charge of Walter Woolsey, D. D. S., Elizabeth, N. J.

Programs will be out June 15th. Last year over 800 dentists registered in attendance. The Auditorium where the meeting is held is the largest and best adapted building on the Jersey coast. Cut off the week of July 15, and be with us.

CHARLES A. MEEKER, D. D. S., Sec'y,
29 Fulton St. Newark, N. J.

INDIANA STATE DENTAL ASSOCIATION.

The forty-ninth annual meeting of the Indiana State Dental Association will be held at the Claypool hotel, Indianapolis, June 11, 12, 13, '07. The executive committee has arranged an unusually interesting program for this meeting. A cordial invitation is extended to the profession to be present.

CARL D. LUCAS, Sec'y,
Indianapolis.

SOUTH DAKOTA DENTAL SOCIETY.

The 25th annual meeting of the S. D. Dental Society will be held in Sioux Falls, June 5, 6, 7.

A most interesting program has been arranged, and we want to see the largest attendance the society has ever had. A larger membership is desired and every dentist in the state, who is eligible, should become a member.

A special invitation is extended to southeastern Minnesota and Northwestern Iowa dentists to attend.

FERDINAND BROWN, Sec'y,
Sioux Falls.

ALUMNI ASSOCIATION WASHINGTON UNIVERSITY DENTAL DEPARTMENT.

The annual meeting of the Alumni Association of Washington University Dental Department (Missouri Dental College) will be held May 20-21, 1907, at the college building 2645 Locust Street, St. Louis, Mo.

A number of prominent essayists and clinicians have been secured and an interesting and instructive program will be presented.

Adequate space has been secured for the various manufacturers' exhibits; this will be a noteworthy feature of the meeting. All ethical practitioners invited to attend.

Executive Committee,
DR. A. J. PROSSER, Chairman.
DR. L. W. HORSTMAN,
DR. CHAS HERBERT,

AFTERMATH

Will Specialize.—Dr. Howard T. Stewart, Memphis, Tenn., has limited his practice to the treatment of Rigg's disease.

Fredericksburg (Va.) Dental Society.—Organized January 29, by the dentists of Fredericksburg. Dr. J. F. Thompson was elected president and Dr. H. M. Eckenrode, secretary and treasurer.

Honorary Membership.—The American Dental Club of Paris has appointed Prof. Wilhelm Sachs, of Berlin, as an honorary member. Up to the present this distinction has not been accorded to a foreigner.

Central Dental Association of New Jersey.—The following officers were elected: President, Dr. H. Parker Marshall; vice-president, Dr. C. F. A. Harney; secretary, E. W. Holland; treasurer, Dr. Charles A. Meeker.

Sandusky County (O.) Dental Society.—Officers elected were: President, Dr. C. H. Weeks, of Clyde; vice-president, Dr. W. B. Tiffany, of Clyde; secretary, Dr. G. B. Smith, of Fremont; treasurer, Dr. G. A. Mochel, of Fremont.

Southeastern Iowa Dental Association.—Officers elected were: President, Dr. J. T. Martin, of Muscatine; vice-president, Dr. W. W. Vance, of Ottumwa; secretary, Dr. George W. Slingluff, of Burlington; treasurer, Dr. W. E. Creath, of Ottumwa.

Marriages.—Dr. H. E. Cromwell, of Ridgway, Pa., and Mrs. Ethel Miller, Somerset, January 27th; Dr. Grant Minnich, Springfield, Ohio, and Miss Bessie Stephens, of Columbus, O., January 30th; Dr. Joseph Mohan, of Pontiac, Ill., and Miss Lucy Kennedy, January 15th.

Change of Location.—Dr. N. A. Hitchcock, of Louisville, Nebr., has sold his dental practice to Dr. Baily, of Omaha. Dr. Hitchcock is now located in Colorado Springs. Dr. John Means, of Greenfield, Iowa, has sold his practice and residence property to Dr. Howard T. Gibford, a dentist from Des Moines. Dr. Means expects to go south.

Lorain County (O.) Dental Society.—Officers elected are as follows: President, Dr. J. L. Ewald, Lorain; vice-president, Dr. D. S. Husted, Oberlin; secretary-treasurer, Dr. Walter Henkel, Elyria.

After Illegal Practitioners.—It is reported that on November 19. 1906, R. R. Folger was bound in a bond of $500 for the illegal practice of dentistry in Mount Airy, Surry county, North Carolina. Folger has left the state.

Suit Decided in Dentist's Favor.—The jury in the case of Miss Adah C. Green against Dr. V. G. Maercklin, a dentist of Milwaukee, Wis., returned a verdict of not guilty. Miss Green sued the dentist for $1,000 damages, charging that he had extracted the wrong tooth. The defence was that the patient bit the dentist's finger and he knocked out the tooth by mistake.

New Dental License Bill Introduced in Minnesota.—Mr. Putnam presented a bill, January 9th, in Minnesota legislature, proposing that a dentist who had practiced five years in another state was a member of the State Dental Society of that state, and had a certificate from the examining board, upon removal to Minnesota shall be entitled to a license without further examination.

Convicts as Patients.—It is probable that the Utah legislature will enact a law permitting candidates for certificates before the Examining Board to give practical demonstrations of their ability by operating on penitentiary convicts. Such recommendation is contained in the message of Governor Cutler.

At the state prison opinion is divided as to the wisdom or justice of the proposed law.

Dentists for Insane Asylums.—Among the bills presented by Assemblyman F. W. Bush in California was one which provides for the appointment of dentists in the state insane asylums, and another which, if adopted, will pension all state employes who have served twenty-one years. For the dentists to the state hospitals Bush favors a salary of $1,500 or $2,000. All applicants must be graduates of recognized colleges.

Banquet in Honor of Dr. L. P. Haskell.—On Monday evening, January 21, 1907, a banquet was given in honor of Dr. L. P. Haskell, of Chicago, by the Faculty of the State Dental College, Dallas, Tex. Dr. Haskell is emeritus professor of prosthetic dentistry in the college. At the banquet the following toasts were responded to: Dr. T. G. Bradford, toastmaster. High Ideals, Dr. C. J. Lyons; The Relation of the Physician and Dentist, Dr. W. E Howard; The Status of the Dental Profession, Dr. H. L. Adler; The College Clinic, Dr Allen N. Kearby; The Dentist from a Physiological and Pathological Standpoint, Dr. J. H. Morris; Thoughts of the Laiety, Hon. R. E. L. Saner; Progress of Dentistry, Dr. L. P. Haskell.

The Pure Food and Drug Law.—Since the first day of January, 1907, every medicine of every kind or description, even those put up on physicians' prescriptions, which are transported across the state lines and contain alcohol (including standard tinctures), morphine, opium, cocaine, heroin, eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilide, or any derivative thereof, are required to be so labelled, with the proportion contained therein.

Deaths.—Dr. A. J. Grosvenor, of Springfield, O., January 24th, of apoplexy, aged 55 years; Dr. Lloyd L. Leslie, Jonesville, Wis., January 28th; Dr. Halvor Lee, of Prairie Farm, Wis., January 6th; Dr. Carleton Kimball, of Portland, Me., January 15th; Dr. J. W. Wycoff, of Chagrin Falls, O., January 15th, of heart failure; Dr. John B. Good, of St. Joseph, Mo., January 6th, aged 70 years; Dr. William C. Derby, of Ellenville, N. Y., January 31st, aged 78 years; Dr. Edmond E. Vadnais, of Springfield, Mass., February 3rd, of pneumonia, aged 33 years.

Open Mouth by Suggestion.—According to the newspapers, a dentist of Lawrence, Mo., has discovered a clever scheme for making his patients keep their mouths open. Almost everyone has seen the picture which is rivalling "The Whole Dam Family," and is called "A Yard of Yawns." The picture is a yard long, containing the pictures of a whole family, each member of which, from great-grandfather to the baby is yawning violently. Yawning, as many people know to their sorrow, is violently contagious, and one person yawning has often set a room full of people to yawning. The dentist simply has the picture hanging in view of the dental chair, and he says that all of his patients are constantly yawning.

Consolidation of the Fraternal Dental Society and the Society of Dental Science of St. Louis.—At a joint meeting of the Fraternal Dental Society and the Society of Dental Science of St. Louis, held December 18, 1906, a consolidation of the two societies was effected, the society to be known in the future as the St. Louis Society of Dental Science. The officers and committees for the ensuing year are: D. O. M. Le Cron, president; Richard Summa, vice-president; Clarence O. Simpson, secretary; W. E. Brown, treasurer. Executive committee—W. L. Whipple, E. E. Haverstick, Herman F. Cassel. Advisory council—George A. Bowman, A. H. Fuller, Adam Flickinger, Wm. Conrad, Burton Lee Thorpe, Edward H. Angle, E. P. Dameron. Clarence O. Simpson, secretary, 457 Century Bldg., St. Louis.

Lincoln (Neb.) Odontographic Society Banquet.—The third annual banquet and clinic of the Lincoln Odontographic Society was held in January, and at the same time the executive committee of the State Dental Society met and discussed arrangements for the annual meeting of that body, which will be held May 21, 22 and 23.

Several prominent dentists from the other cities were present and Dr. Woodbury, of Council Bluffs, had charge of the clinic. Dr. M. E. Vance entertained the society at lunch at the Commercial Club and the members of the state executive committee were his guests for the day.

Among those present from out of town were: Dr. E. H. Bruening, Omaha; Dr. Horace Warren, Missouri Valley, and Dr. H. G. King, of Fremont. The officers of the society are as follows: President, Dr. C. R. Tefft; vice-president, Dr. C. E. Brown; secretary, Dr. P. J. Morton.

Robberies.—The dental office of Dr. O. M. Barker, of Rockford, Ill., was entered January 26th, and $100 worth of gold was taken. A burglar entered the offices of nearly every dentist in Pine Bluff, Ark., January 26th, and stole all the gold which they had in stock. Each of the dentists lost from $50 to $75 worth of gold. The dentists whose offices were entered are Drs. Mayfield, Land, Edgar, Black and Grandy. The dentists of Little Rock, Ark., and of Memphis, Tenn., have also suffered similar losses recently. Dr. W. A. Sebolt, of Davenport, Ia., lost gold to the value of $100. The office of Dr. I. Jonas, of Mobile, Ala., was entered, January 13th, and dental instruments of considerable value were taken. R. A. Ruch, of Mobile, Ala., reported the loss of gold valued at $140. Dr. C. P. Robinson, of Mobile, was also robbed. Gold and several dental instruments amounting in all to $30, were taken from the office of Dr. R. A. Jennings, of Sterling, Ill.

Suit Against Estate of a Dentist.—Arthur Simpson, of Anamosa, Iowa, filed suit, January 20, against the estate of the late Dr. William B. Pearson. It is alleged in the petition that about December 23, 1905, Simpson called on Dr. Pearson, who was then a practicing dentist in Anamosa, for the purpose of having a molar tooth filled; that Dr. Pearson, in order to properly fill the tooth, put into the cavity arsenic or some other remedy, to devitalize or kill the nerves preparatory to filling. The plaintiff claims that the defendant negligently permitted some of the arsenic or other remedy to get on the gums, and work its way up into the gums and bones of the jaw, resulting in necrosis of the jaw bone, the loss of the tooth treated, the poisoning of other teeth and the impairment of eyesight. The plaintiff asks damages in the sum of $3,000.

Dr. Pearson had successfully practiced in Anamosa for many years, but died about three months ago.

Governor's Decision Favors Arizona Dental Examining Board.—Mention was made in February Dental Summary of charges made against the Arizona Examining Board. Governor Kibbey, January 20, rendered his decision in the Arizona dental board charges, which were recently investigated by him. The charges against the dental board were filed by Dr. H. H. Wilson, and were twelve in number. The first charge was that examinations by the board are prohibitive and not elementary and practical. While this charge is not sustained, the report states it is easily to be seen that there might be unfair discrimination in considering the answers. The second charge, that the dentists, and not the people are protected by the board is not sustained. The tnird, that but two applicants who desired to practice in Phoenix have been admitted in two years, while it may be true, is no reflection upon the board. The charge that there is an unlicensed dentist in the employ of the president of the board is not answered in a sufficiently direct manner to suit the governor, and he criticises this fact. The answers of the members of the board to this charge is that it is not a charge against the board. The fifth charge, that the conduct of the board had led to the rumor of the existence of a dental trust in Phoenix, while not sustained, was enough evidence to warrant some criticism of the board, and the governor states that he regrets that there has been too much of irregularity in the proceedings to wholly avert suspicion of discrimination. The sixth charge, that examinations were held without quorums being present, is true, and while explained by the board as having been done for the accommodation of applicants, the governor does not approve of it. None of the other charges are sustained. The governor concluded his letter to the interested parties with a lecture on professional courtesy and dignity and an expression of regret at existing jealousies.—Phoenix Democrat.

Boil It Down.—The following, clipped from the Sunday School Times, puts the thing in a nutshell. We want to hear from every member of the "family" possible: if all "boil things down" we can give every one a chance:

When you've got a thing to say,
Say it! Don't take half a day.
When your tale's got little in it,
Crowd the whole thing in a minute!
Life is short— a fleeting vapor—
Don't you fill the whole blamed paper
With a tale which, at a pinch,
Could be cornered in an inch!
Boil her down until she simmers:
Polish her until she glimmers;
When you've got a thing to say
Say it! Don't take half a day!

Farewell, "Carbolic Acid".—Carbolic acid has been relegated to the limbo of the "has beens.' This does not mean that such an important agent will be discarded by doctors, but—the United States Pharmacopeia now calls it simply "Phenol." This is a much better name and will be used hereafter in these pages. All progressive physicians will do well to adopt the new name. The 95 per cent. solution is known as "phenol liquefactum." Salol is no longer "salol," but phenylis salicylas—salicylate of phenol.

Recent Patents of Interest to Dentists.—

838296—Dental work, Harrison D. Best, Pittsburg, Pa.
836967—Dental mirror, Walter H. Grant, Boston, Mass.
840921—Dental swage, Joseph W. Dickey, St. Louis, Mo.
838299—Head rest, Arthur W. Browne, Price Bay, N. Y.
838415—Artificial tooth, John H. Jackson, Boston, Mass.
840738—Dentifrice, Frank P. Barnard, Worcester, Mass.
836299—Dentists' tweezers, Welby W. Burgin, Richmond, Ky.
837423—Dental handpiece, Alson C. Sargent, Des Moines, Iowa
840348—Specialists' chair, Charles N. Leonard, Indianapolis, Ind.
38408—Design, dental cabinet, Harry C. Gowran, Two Rivers, Wis.
38409—Design, dental cabinet, Harry C. Gowran, Two Rivers, Wis.
838849—Porcelain and metallic crown, Charles A. Davis, Pasadena, Cal.,
839920—Magnesia cement composition, Wm. L. Dudley, Nashville, Tenn.
838027—Tool for handling artificial teeth, Frederick L. Hunt, Asheville, N. C.
841006—Apparatus for the manufacture of reducing amalgam, Herbert P. Ewell, Rochester, Mich.
837871—Toothbrush and dentifrice bracket, Lewis W. McConnell, and W. V. Gage, McCook, Nebr.
838648—Combination hand mouth-mirror and chip blower and flushing and spraying device, Oliver T. Robertson, Milford, Ohio.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

"Owed" to the Toothache and the Dentist—A Painful, Touching Tale.

You toss about all through the night,
  Get up, perhaps, turn on the light,
And put an ointment on the gum,
  Then wish and pray for day to come.

You seek the dentist, tell your woe,
  Into his sanctum then you go.
You prayed last night this hour were here,
  But now the pain is not severe.
You wish you had not come at all.
  'Tis gone just like a summer squall.
The dentist, horrid, heartless man,
  Says, "Save it for you if I can.
Let's see—left molar, half decay,
  Incisor needs a gold inlay.

This cuspid should be newly crowned—
  Bicuspid's awfully unsound.
Below the same sad state prevails—
  A bridge or two with odd details
May save you from a sadder fate
  And keep your mouth free from a plate—
Exposure toward the apex here,
  With pulp quite visible and clear.
Devitalize the cuspid quite,
  And then I think you'll be all right.
Oh, living, breathing, sentient man,
  Come safely through this if you can.
Had you but known this yesternight
  You surely would have died of fright.

The rubber dam is tightly tied,
  Or else that fiendish clamp applied;
A napkin tucked beneath your chin,
  And then the joys of life begin.
Two steady, calm, dissecting eyes
  Direct the "buzzer" as it flies;
And down your back the shivers chase,
  A rythm to the "buzzer's" pace.

At last 'tis finished. Take the glass,
  A critical inspection pass;
Four inlays and a bridge and fill—
  But now there comes that awful bill;
Oh painful epoch, draw the veil!
  Suppress your half ejected wail.
'T would buy a lot, that shining gold.
  But sore, distracted wretched man,
If that remains, and if you can
  Glance backward to that painful night,
And you will own the dentist's right.

Seattle, Wash. —FLORENCE ADELE WHITFORD.

[The above was written by a patient and presented to her dentist, in Seattle, Wash.—Ed.].

DENTAL COLLEGE TEACHERS' CONTRIBUTIONS

SOME OBJECTIONS TO THE BAND AND DOWEL CROWN AS GENERALLY USED.

BY CHALMERS J. LYONS, D. D. S., DALLAS, TEXAS.

Professor of Crown and Bridge-Work in the State Dental College, Dallas, Texas.

Probably no artificial substitute for the natural crowns of teeth, lost through accident or by the process of caries, other than the all-gold shell or telescope crown, has been as extensively used or as extensively abused as has the band and dowel crown, which was first suggested by Dr. C. M. Richmond and later modified, but which is still known as the Richmond crown.

The Richmond crown is one of the best crowns we can use when due regard is heeded to all the mechanical and esthetic requirements, but it can safely be said that not one crown in five is so made.

How often do we see cases where a patient has been wearing a faulty constructed band and dowel crown where pericementitis has been induced by a poorly fitting band or collar impinging upon the pericementum, to the extent that the whole tooth has become loosened in the socket and elongated. We see, perhaps, still more often, cases where an ill-fitting band has set up irritation at the gingival border, causing recession of the gums.

The tissues of the body are very sensitive and delicate, and when their normal conditions are disturbed, pathological conditions are induced.

It is a very difficult procedure to fit a band and cap perfectly over the end of the root of an incisor or cuspid, so as to retain all of the normal physiological relations on account of the natural shape of the roots of these teeth, which are conical, tapering from the crown to the apex. Too often these roots are not properly prepared to receive the band and a shoulder is consequently made between the band or cap and the root, which, though ever so slight and even hidden by the gums, will afford opportunity for the lodgment and accumulation of food deposits, the subsequent decomposition of which is productive of abnormal conditions, besides being very unhygienic.

A plate and dowel crown makes a much better crown than a band and dowel where the band does not fit the root *absolutely,* as the plate can be burnished to the end of the root as closely as a matrix for a gold inlay can be burnished into a cavity, and can even be burnished over the edge of the root so as to get almost as much protection as with a band, and if the root is trimmed so that the end is V-shaped, the crown will be so constructed that a support will be given it from the lingual half. As the stress on the incisors and cuspids is upward and outward during the process of mastication, this crown will be so constructed that the stress will be distributed throughout the whole root, and the physiological relations at the gingival border remain unchanged and in normal condition.

We see many band and dowel crowns placed in the mouth where no attention whatever is given to the esthetic requirements. The disregard for normal cervical curvature materially increases the artificial appearance of the work. Instead of grinding the facing so as to conform to the natural curve at the gingival line, many are cut off perfectly square and an unsightly band extends the remaining distance up under the gum.

Proper alignment is another step that is often overlooked, and the bulging appearance so often seen in these crowns is caused by the dowel being set too far to the labial in the root and cap, thereby making it impossible to grind the facing into normal alignment. The dowel should always be set in to the lingual portion of the root and cap just as far as possible, so as to have ample room on the labial portion to place the facing in alignment with the natural teeth.

Another very serious objection to the Richmond crown as ordinarily made is the unsightly tip. Many dentists of good repute think they have got to bevel their facings at an angle of forty-five degrees and place on a heavy tip for protection. In this method of construction the facing does not receive the best protection, as the strength of a piece is no stronger than its weakest point, and the weakest place on crowns tipped in this manner is usually about one-third of the distance between the incisal edge and the gingival line, or at the point of occlusion. If the backing is left thin at this point no amount of reinforcement of gold at the tip will strengthen it. A better plan is to bevel the facing in a long bevel from the pins to the incisal edge, for in so doing a protection is secured just at the point where the stress is the greatest and the unsightly display of gold and the unnatural appearance is overcome.

When due regard has been given to the details of perfectly adjusting the band and cap so that they *absolutely* fit the root, and the observance of the minutest details in the endeavor to imitate nature has been made, then the band and dowel crown becomes one of the safest crowns that can be used, but when these principles are disregarded it becomes a poor substitute for the lost natural crown.

REGULAR CONTRIBUTIONS

A CROWN WHOSE BAND REMAINS INVISIBLE*

S. D. RUGGLES, D. D. S., PORTSMOUTH, O.

Prepare the root as for a Logan crown, then counter-sink one-sixteenth of an inch into its face well toward the lingual, a Walker-Younger trephine, of a size to suit the case; that is, one that will not come so near the periphery as to endanger its strength. Now place in this groove a ring that corresponds in diameter to the trephine used and grind it even with the face of the root. These rings are made of thirty-gauge gold or platinum, depending upon whether it is to be a porcelain or Richmond crown. (A stock of the different sizes can be made and kept on hand. The trephines used most are numbers two, three and four, and can be bought from The S. S. White Co., at one dollar each). Leaving the ring in position, you next select a piece of metal of same thickness, and of size sufficient to cover the entire surface of the root. Burnish to place, being careful to anneal frequently. Now remove the ring, place in position upon this disk and solder. Replace the ring in the groove and burnish and trim the metal disk until it corresponds to size and shape of root. Should you care to make a banded Logan, puncture the disk and ream out the root canal to fit pin, and proceed in the usual way, for either a solder case or for porcelain.

If a Richmond or all-porcelain is desired, puncture the metal covering canal, ream it out and fit an iridio-platinum pin, tack in place with sticky wax, remove and solder. Now you can proceed in the customary way.

It is good practice when using the regular Logan crown to insert a ring or band with quick-setting cement, and grind even with the face of root, then set your crown as in other cases. This will prevent the root from splitting on account of undue lingual pressure.

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*Given as a Clinic at Ohio State Dental Society, December, 1906.

The advantages of the method are no irritation to soft tissues due to an ill-fitting band, no metal visible and universal application to all porcelain or porcelain combined with metal.

THE USE OF FLEXIBLE RUBBER IN THE RETENTION OF ARTIFICIAL DENTURES AFTER OTHER MEANS HAVE FAILED.*

BY NEWELL H. GROVE, WYOMING, OHIO.

My clinic consists in the demonstration of a useful attachment for artificial vulcanite dentures, both upper and lower, whereby advantage of the atmospheric pressure and adhesion of contact is taken in such a manner as to hold the dentures firmly in the mouth of the patient so that they will not dislodge or become loosened during the process of mastication or during conversation.

This method is especially applicable where after you have made a denture, you find that owing to the extreme flatness and hardness of the tissues it will not stay in place. Then apply the strip of flexible rubber to the denture and it will adhere so firmly that quite an effort will be necessary to dislodge it.

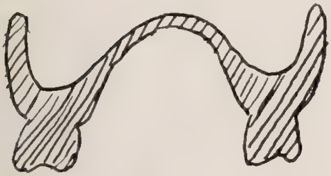

Fig. 1
Cross Section—Upper.

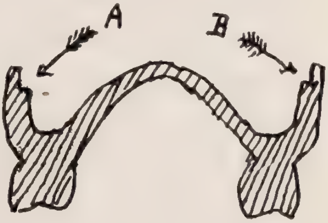

Fig. 2
A. B.—Ledges or Grooves.

The process of attachment of said flexible strip is as follows: The denture, either upper or lower, is made and vulcanized in the usual manner, and the edges of the plate trimmed so as to completely free the muscles when the mouth is opened or closed, and in case of lower allowing for free movement of the tongue. Then a ledge ⅛ inch, or slightly less in width, is cut with a fissure bur to the depth of the thickness of the flexible rubber to be used. This ledge or groove is made completely around the rim or edge of the plate on the side next to the gums and across the back of the plate, so that it is continuous around the whole plate.

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*Clinic at Ohio State Dental Society, December, 1906.

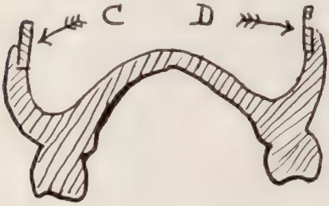

Fig. 3

Cross section showing flexible strip in place at *C* and *D*.

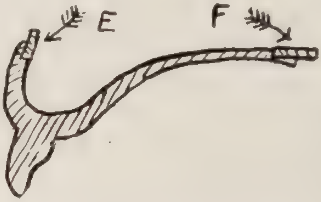

Fig. 4

Longitudinal section showing flexible strip attached to *E* and *F*.

The bottom of this ledge or groove is painted or coated over with a solution of base-plate rubber in chloroform and allowed to dry. Then cut a strip of Doherty's flexible or palate rubber, 3-16 of an inch, or slightly more in width, and place it carefully in this ledge and pat it down tightly and smoothly with a spatula, the fingers or other instrument, leaving the flexible rubber projecting beyond the edge of the plate. The ends of the piece or pieces of flexible rubber are thoroughly united by means of a warm spatula so that it forms a continuous band or piece around the plate.

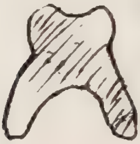

Fig. 5

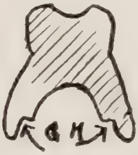

Fig. 6

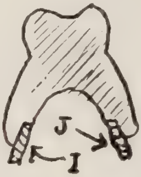

Fig. 7

Fig. 5—Section of lower denture.
Fig. 6—Same Showing ledges or grooves at *G* and *H*.
Fig. 7—Same showing flexible strip at *I* and *J*.

The whole is then invested in plaster in flask and revulcanized, after which any necessary trimming and polishing may be done.

ABUSES OF AMALGAM AND THEIR TREATMENT.*

BY N. K. GARHART, INDIANAPOLIS, INDIANA.

Almost every state in the Union has been endeavoring to create adequate laws for the purpose of governing or regulating the practice of dentistry. They are the outcome of the demands made by the better element of the dental profession for the interests of the public. We find the same sentiment prevailing everywhere, so far as protecting the public from the machinations of large corporations or trusts, and where state legislation has been found inadequate to stop these existing evils, our government has seen fit to intervene in their behalf. For example, both branches of congress have recently passed the railroad rate and pure food laws.

Considering the efficiency of state laws for regulating the practice of dentistry, we must confess that they have not by any means reached the goal of perfection. There is a grave doubt that it is possible to enforce laws that will be stringent enough to entirely abolish the practice of defective dentistry. The same opinion prevails in regard to the practice of medicine or any other profession or business that one might adopt for a livelihood.

There seems to be a supreme law that will always act as a permanent barrier to the protection of society, and this law is "the supreme right of every person to earn their own living." I also refer to their right to choose any legitimate calling in life that they may elect, regardless of their fitness to serve the public in an efficient manner. When referring to the term ability, three factors are always to be considered, such as good, bad and indifferent. Naturally, the products of these three factors will always be good, bad and indifferent results. It is not an infrequent occurrence to find parties that are mentally and physically capable of serving the public in a proficient manner, but in spite of these endowments of Providence they will actually turn out the poorest kind of results. We find one element lacking in their "make-up," and that is the moral inclination to do things right. Again we find men that possess the moral inclination, but they are mentally and physically incapable of performing their duty. There will always be plenty of room for practitioners that are morally able to serve the public in an efficient manner. This rule applies with equal force to all existing professions as well as parties engaged in manufacturing enterprises.

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*Read before the Ohio State Dental Society, December, 1906.

There seems to be some invisible force that leads us to take up such occupations wherein we can serve the public to the best of our ability. I have very little faith in the argument that "John Jones would have made a great lawyer had he followed that profession for his livelihood." If John Jones could have been a great lawyer the chances are that he would have won his spurs in the profession of law instead of achieving distinction in some other occupation. Every once and a while we will meet with a rare species of genius, men who are gifted in many directions, but yet these donations of Providence are not strong enough in any one direction to properly classify them among our great men. "Water will find its own level," and in a like manner so will man find his own occupation such as will enable him to achieve the best results.

Considering the heterogeneous "make-up" of human kind, we are compelled to concede the fact that we must always expect a fair percentage of amalgam failures. After duly considering these natural conditions, we must realize that the percentage of amalgam failures is too large to be attributed to the aforesaid-mentioned causes. The reason for this existing condition is due to the very low fees which are usually received for amalgam work. The law of compensation, or, "the public receiving just what it pays for," expresses the situation why this evil exists. Some times they receive more, in many instances less, but as a rule they obtain just what they pay for. In a recent paper that I read before the Indiana State Dental Society (see September issue of The Dental Summary), the following reasons were given why amalgam fillings fail. They are as follows:

The existing low prices.
Bad and indifferent dentistry.
Bad and indifferent alloys.
Failure to use the matrix where indicated.
Failure to use the rubber dam.
Imperfect amalgamation of the alloy.
Surplus mercury within the filling.

Imperfect preparation of the cavity, such as failure to remove all decay, imperfect contouring, insufficient retention, especially in those cases where the filling is exposed to stress of mastication.

Using amalgam after it has partially crystallized, and which is one of the abuses arising from the improper use of rapid-setting alloy.

Using improperly designed instruments and the lack of sufficient pressure when condensing the amalgam into place.

Using alloys in such instances where some other form of filling material is indicated.

Just consider how often many important details are omitted in the mixing process, the preparation of the cavity and inserting the amalgam therein. We certainly realize that there must be a mighty slim chance to save teeth under such existing conditions. Think of the infinite amount of detail work and skill that are involved in every dental operation! If this were not true, dentistry would be a trade instead of a profession. Dentistry has become so broad and so extensive that the time has now arrived for the better element of your profession to specialize in such directions where their talents and inclinations will produce for the public the most beneficial results. Amalgam, gold and cement fillings provide a fertile field for practitioners of ability to qualify for the public's behalf. The noble and great work that is being accomplished by eminent dental specialists is doing more to elevate the standard of dentistry than any one thing that can be brought to your attention at this present time.

The public must be educated to differentiate between a low and high grade of dentistry. It is entirely within your province to secure ample fees for your services providing that you will take the public into your confidence and educate them to pay for skill and results instead of fixing your fees on a material basis.

There is no occasion for the average dentist to fear that suitable alloys are not to be had. The present market affords an ample supply of high grade alloys which possess the desired qualities for saving teeth providing that they are handled in a judicious manner. Such an alloy that you might select should be secured from a reliable manufacturer, and it should contain no less than four metals in its composition. The percentage of silver should range from 60% to 68%. Alloys possessing the proper quality do not depend altogether on formulae. Scientific smelting, proper cutting and careful annealing are features of paramount importance to be considered in the manufacturing process.

Alloys which are usually sold at fictitious prices are usually advertised on a fictitious basis. Statements coming from such a class of manufacturers are, as a rule, very false and misleading, and in many instances the quality is sacrificed to pay for extensive advertising as well as for expensive methods that have been adopted for marketing their products. You must rely entirely upon your own judgment when selecting your alloys, inasmuch as it is quite natural for your dealer to sell to you such brands that will yield for him the greatest percentage of profit.

I have endeavored to point out in this paper such errors of "omission and commission" (however, usually commission), which are the cause of faulty amalgam fillings. From what has been said on this subject in the first part of this paper, the proper treatment for such failures may be readily selected with the object in view of improving this important branch of dentistry.

MAKING THE MIX.

"Making the mix" is one operation in which we find such a wide difference of opinion as to the best method that should be adopted for preparing the amalgam for the cavity. You are advised to make the "mix" in the mortar while other authority will insist that it is best to form it in the palm of the hand. Other factions will tell you that a combination of these two methods will give far more satisfactory results.

After the "mix" has been made, some practitioners will insist that it should be washed with hydrochloric acid and water, while others will advise the use of grain alcohol for removing the impurities that the amalgam is supposed to possess.

When discussing the proper proportions of alloy and mercury to be used for each "mix" we find a further difference of opinion. One faction will prompt you to weigh them with the utmost care, and furthermore, you should be careful in keeping the proportions intact. We find other authority that will insist upon using the least amount of mercury that can be made to combine with the alloy, thus adding it gradually as you proceed with the mixing process.

When considering the various methods for removing the excess of mercury, we find one class that is of the opinion that the "finger and thumb" process will yield good enough results. Other factions claim that important metals are carried away with the free mercury, and so they advise that the use of the "chamois skin" or "drilling" is necessary to preserve the integrity of the (mix). They also assert that you must twist the mass within the "drilling" in order to obtain the necessary pressure for removing all traces of free mercury. Last, but not least, are those operators who use the flat nose pliers for providing a greater pressure in order to eliminate a larger percentage of free mercury than may be accomplished by any other process.

I firmly believe in some one method that will produce a uniform amalgam providing that in each instance none of the details are omitted. A "faultless mix" does not insure a good filling in every case. It is merely a step in the right direction for securing permanent results. There are three changes that usually occur in every faulty filling: one is shrinkage, the second is spheroiding or abnormal shrinkage, and the third is a "change in form" of the filling. The first two changes are due to a surplus of mercury that is present in the filling. The third change is the result of the presence of minute particles of alloy that have not as yet succumbed to the action of the mercury. They slowly yield to the prevailing traces of free mercury, and which action produces a new formation of crystals. During the formation of these crystals, a slight change in the form of the filling will transpire.

The very best grade of alloys will not combine readily with mercury, and for which reason a change in form is more apt to occur in the finished filling, providing that a homogeneous amalgam has not been secured. Such alloys always possess the faculty of absorbing an undue percentage of mercury when the "mix" has been first formed. Failing to remove the excess of this metal and also effecting a complete amalgamation of every particle of alloy are the two chief reasons why amalgam fillings shrink, spheroid and "change in form".

I believe that the "mortar method" is the most sanitary and the quickest way for effectively uniting the alloy with the mercury. The mortar and pestle should be cleaned occasionally, using acid and water for the purpose of removing the stain.

Washing the "mix" with hydrochloric acid and water or grain alcohol is not necessary in such instances where high grade alloys are in use.

There is no need of using a high-grade and homogeneous alloy if you do not intend to produce a homogeneous "mix" from it.

Do not fear the use of surplus of merçury when first forming the "mix". Bear in mind, it is the quantity that you remove and not what you put in that is the item of greatest importance. Use an ample supply of mercury so that every particle of alloy will be thoroughly united with it. After the metals have combined, remove the mass from the mortar and then place it in a chamois skin. Gently twist out the excess of mercury and then return the mass to the mortar. Work it the second time in a vigorous manner or until it has re-softened. Now, return it to the "chamois" and remove the excess of mercury as stated heretofore. Repeat these triturating and wafering processes until, all told, four operations have been performed. In the event that the mass should be large, subdivide it into three or four parts and express the free mercury from each portion with the aid of a pair of flat nose pliers, filtering the mercury through the chamois skin. This is to be the fourth or final wafering operation.

This process will produce a homogeneous amalgam which will be ready for the cavity. The success of your filling will depend upon the skill and care with which the cavity has been prepared, as well as the manner in which the amalgam has been condensed into place. Good pressure is required to work the soft amalgam to the top. It must be removed by lifting it out of the cavity, and not by merely brushing away with cotton.

The amalgam should be as dry on the surface as it is at the bottom. You must build the filling a safe distance above the top in order that you may remove all of the soft amalgam and yet leave sufficient dry material to complete the filling operation.

DISCUSSION.

Dr. H. T. Smith: The difference between a good and a poor alloy is largely in the amount of silver incorporated. Alloys were formerly made largely of tin, say 48 to 52 per cent. tin and the rest silver. This gives an extremely plastic material, one easily prepared for use. This was slow-setting, and was without much crystalline form. The amount of silver required to give a good, hard mix should be above 65 per cent. At ordinary temperatures this is acted upon by mercury, with great difficulty. The difficulties dentists have had have resulted from the easy-working qualities of these tin alloys. Dr. Garhart has said that a good, hard amalgam has two movements—a shrinkage, rather slight, within the first 24 hours, and after that a gradual and continuous expansion. This may continue a number of months, or even for years. During this period of shrinkage there is more or less loss of material, which can never be restored. Consequently an amalgam filling can never be as good as a gold filling.

Various methods have been tried, experimentally, to determine definitely the amount of mercury to be used with a prescribed amount of the filings to compose the amalgam. According to one method the mercury is weighed. By another method we have provided mercury in capsules, a definite amount to accompany a specified amount of the filings. Perhaps as much depends on the manner of inserting the mix into the cavity as anything else. If a matrix carefully placed so as to resist pressure be used, and the alloy inserted under great pressure, a little at a time, excellent fillings can be made.

Dr. J. R. Callahan: The reader of this paper advises the free use of mercury when first making the mix. My attention has been directed to a method of spatulating the mix after the use of the mortar and pestle. This is far better than mixing it in the hand. Dr. Garhart's method of replacing the amalgam in the mortar and kneading it a second time is an excellent one.

Now I am going to criticize the paper from a different standpoint. I am at present using his alloy. He says that fillings made of this alloy may be polished in twenty minutes. I have waited a considerably longer time than that, hoping to be able to finish fillings at the same sitting, but my idea of the requisite condition for properly finishing the filling was not realized after waiting twenty-eight minutes. In order to get a high polish, such as I want to give all amalgam fillings, I have often to wait at least twenty-four hours. I regard it as essential to the best results that all amalgam fillings be finished with the same care as gold fillings.

(Dr. Callahan here showed photo-prints of microscopic reproductions of fillings made both by hand-pressure and by rotating a burnisher. The latter showed an important advantage as regarded lack of defects in the inner structure, over the hand-made fillings).

Dr. Harvey: Which fillings did you make first, the hand-made or those made by rotation?

Dr. Callahan: Both were made at the same time—I mean I was working the two along together. I was not over two or three minutes in making them. Used the engine in the one case, and pressure by hand only, in the other.

Dr. N. S. Hoff: The essayist has something to say as to the need of the operator using judgment in working alloys. My own feeling is, that while some of us have been using careful judgment for the past thirty years or more, it is not "up to us" to make good by experimenting, and by observing, and all that, the special claims of the amalgam manufacturers. Here is a professional body seeking after a proper substitute for gold, something which may be used with the same certainty as to results—

at least the same, if not better—than we get with gold. It is well enough for them to admonish us thus, but the indisputable fact remains that we are one and all vainly groping in the dark. The trouble has been all along, that we have had no well defined basis from which to operate, no specified details of what should be the direction of our investigations and experiments. All that we could possibly accomplish or discover has been haphazard. I say, if it is "up to" anyone to get definite conclusions as to amalgams, their qualities, their action under different conditions of manipulation, and so on, it is first of all incumbent on the manufacturers to give us more definite grounds for experimenting and comparing results, by improving their amalgams. Let the metallurgists, the chemists, undertake more thorough testing and experimenting, along scientific lines of research, not expect us, with no definite knowledge of what they have furnished for our use, to solve their problems for them. We may go on experimenting forever, and nothing worth while is likely to be achieved. Before they ask us to use care, so as to secure uniformity of results, let them be sure they have supplied us with a quality of uniformity in the materials composing their amalgams. The manufacturers think they are doing as well as possible, yet the test of their materials is not satisfactory to us dentists.

Dr. H. A. Smith: A fact which has been noticed by investigators is that changes take place in the different portions of the body of fillings, frequently, which have reference to the difference in the mass or bulk of the filling, at different points. Thus, in a flash-shaped filling, the body being larger than the neck, changes in shape after a time are often observed, such as do not occur in masses of amalgam of a uniform shape. In making amalgam fillings the personal equation comes into consideration. Until uniformity of method of manipulation is discovered and adopted, there must be uncertainty as to results. I have been a member of this society a long time, and am able to recall a date when the discussion of amalgam was tabooed. Such men as Taft, and Rehwinkel frowned at mention of the word. That was a long time ago.

Dr. Taft asserted that he never used amalgam. What a record for a man who did not believe in amalgam! I never saw a filling of amalgam from his hands.

Dr. Fletcher: The subject interests me greatly. Having realized my inability to select a reliable amalgam, I also came to realize my defect of workmanship after going into my laboratory and making microscopic sections of my fillings. I have adopted a method of inserting amalgam fillings which seems to give better results than the commonly employed method. I mix my amalgam with cement, in the cavity. The late Dr. O. N. Heise and I used to experiment conjointly along this line. In general terms the plan was to mix equal portions of amalgam and cement, lining the cavity with the cement, then forcing the amalgam into it, the amalgam adhering to the cement. This reduces shrinkage to a minimum. Of course, the cement must be kept from the margins. The idea is to veneer a cement filling with amalgam. I believe that to be the best plastic filling that can be made.

Twenty-five per cent. of the work I do with this material is for the sole purpose of rectifying my mistakes.

Dr. W. M. Clawson: As regards the change in shape of amalgam fillings to which Dr. Smith referred, I have seen many fillings where there had been "extension for prevention," and the sulci had not been provided with a retaining pit or groove at the ends. There the fillings changed in shape.

In occlusal cavities the filling is often made too high; then the force of mastication breaks down the edge. There you imagine you have a bulged filling. This appearance results from the breaking of the feather edge of the filling. Cases without number, where there is an appearance of gingivitis, under margins of the gum, nothing is the matter but an overplus of amalgam, in a filling done by some high-priced dentist. (Laughter).

Dr. Garhart: I have had so much to say in the past, on the side of the metallurgist, that I feel I have said enough. Eight or ten years ago, when we used soft alloys, Dr. Flagg, of Philadelphia, had urged the necessity of using mercury in excess, in mixing the amalgam. Amalgams in which tin predominates do not readily set, and are not so hard as those containing a preponderance of silver. Copper and zinc in certain proportions control shrinkage. There is no real need of gold as a constituent of amalgam. Copper toughens alloys. An ingot of amalgam filed gives better results than the same shaved. The coarser the file the better the resulting filings for practical purposes. I do not claim that my alloy is the only good one. There are many good ones on the market.

Many failures of dentists using alloys are due to attempting to fill too many cavities with one mix. After a mix has begun to harden perceptibly, it is a deliberate inviting of failure to force it into a cavity. A new mix must be made.

SOME OBSERVATIONS DURING THREE YEARS' SERVICE IN THE TROPICS.

BY S. D. BOAK, M. D., D. D. S.

Dental Surgeon, U. S. Army, Columbus Barracks, Ohio.

After an eventful voyage of 28 days on the transport "Sheridan" via Honolulu and Guam, we passed through the Straits of San Bernardino at night, in full view of "Mayon" volcano, situated on southern Luzon, and saw the monster belching forth fire and smoke, making a pyrotechnical display seldom equaled. We dropped anchor in Manila bay, about a mile and a half from shore, there being no docking facilities at that time. After the quarantine and custom officials had convinced themselves as to our honesty, we were allowed to disembark on a launch for Manila, a brief description of which may interest you:

It is unlike any other city in the world, so it is claimed, and belongs to a class peculiarly characteristic, Manila being the "Alpha and Omega". Its population numbers in the neighborhood of 400,000 and is a conglomeration of every race under the sun; its streets are narrow and crooked, with just room for two native carriages to pass, and can go Boston one better for confusing the uninitiated.

The Pasig river divides the city into two parts, called Manila and the "Wall City," or old Manila proper. Three large bridges connect the two parts, two being built by the Spaniards, and the third, a new steel structure, a monument of American skill and progress.

Manila (New Manila) is the business section of the combined cities, its streets lined with small stores and bazaars, which are literally "holes in the wall".

Houses are of wood mostly, with here and there a few stone ones, usually two stories in height, of a more substantial appearance, and quite a contrast to the provincial style of house or shack.

The shops are run by Chinese, Filipinos, East Indiamen, Spaniards, Turks, with here and there an American or English store. All work is suspended here, as indeed is the case all through the tropics, from 11:30 a. m. until 2:30 p. m., "siesta" time, as the easterners call it, when every one who has lived in the tropics any length of time take their mid-day nap.

Old Manila, or "Wall City," as it is known, is enclosed by a massive stone wall and moat, built by the Spaniards about 400 years ago, the walls being honeycombed with secret passages and dungeons. On the side of the city facing the bay runs the Malacanan driveway, lined with palms and tropical plants. This drive runs from Pasig river to Lunet park, a distance of about a mile. In this park one of the military bands give a concert every evening, and Manila's sweltering population throng here to get the invigorating sea breezes, which enable them to recuperate for another day's work beneath the tropical sun. The old horse cars were still in vogue, but instead of horses, the Filipino pony was used; the pony is a diminutive animal, which, here, would be used to swell the output of some glue or phosphate factory. The principal means of transportation at that time, however, was a twowheeled concern called a "carromata," pulled by one of these animals, and costs about 20 cents, gold, an hour.

We stopped at a hotel(?) in the Wall City called the "Universal," run by a German, and the only thing universal that I could discover was the way he robbed us at $2.50 per day for fish and rice.

While in Manila awaiting my orders to go to my first station, I called upon several of the American and foreign dentists, most of them being located on the "Escolta," which is the principal business street in Manila. The American offices were well equipped with modern appliances, and a boy working a "punka," which is a light bamboo framework covered with cloth and attached by hinges to the ceiling; it extends about two-thirds across the ceiling, and the motive power is furnished usually by a small boy, who, seated upon the floor or on a stool, pulls it back and forth by a piece of twine attached to the bottom part. This primitive arrangement keeps the air circulating, and yet does not cause a draft like an electric fan would. Manila has sixteen Filipino (including one woman), five Spaniard, one Englishman, five American, and two Chinese dentists, the Englishman being what we term an "advertiser".

The native offices were not furnished in the modern way; wooden chairs, in some cases with old-style instruments, and cabinets. Most of the native practitioners were graduated from the Santo Tomas University of Medicine, which is the dental college in Manila. As to its course of instruction, and members of faculty, I do not know enough to criticise. Two of the native dentists were graduated abroad, one in Spain, the other in Paris. There is no dental depot in Manila, but the "English Drug Store" accommodates(?) the dentists, charging $2.50 to $3.50 for gold and gold solders, $8 per $\frac{1}{8}$ oz. for gold pellets, and proportionately high prices for other materials and instruments. It is true that they cost more over there, due to distance and duty charge, being 20 per cent ad valorem on all dental golds, materials and instruments. Coin gold of English or American coinage is the principal gold used by the Manila dentists, as they can obtain this free of duty; (of course this is only in case of prosthetic work). They also make their own solders, several of the native dentists own rolling mills, and make a specialty of refining and rolling gold for the profession. The Filipinos are great cowards, as a rule, about having dental work done, unless it is operations that will not cause them any suffering, preferring to suffer until, in the course of time, nature repairs the ravages of disease. This applies more particularly to the lower classes both in Manila and in the provinces; which lower classes are in the great majority.

My first order sent me to San Fernando, Pampango province, Luzon, the headquarters of General Funston, of Aguinaldo fame, about 40 miles from Manila, of the Manila & Dugupan R. R., where I arrived with my field outfit after four hours' travel.

FIELD OUTFIT.

This outfit consisted of five portable cases, made so they can be packed upon mules.

No. 1 S. S. W. Gold Medal portable chair, which is packed into a small chest, which chest is used as the base and foot rest for the chair.

No. 2 S. S. W. Engine, made to pack into a case, the size of an ordinary dress suit case.

No. 3 Dental Instrument Chest, containing all operating instruments and appliances, each placed in a separate compartment in the trays of the chest, made especially to fit it to prevent rattling in transportation.

No. 4 Dental Medicine Chest and Sterilizer, containing all the various articles of supply.

No. 5 Medical Department Chest, Field Desk, containing all the necessary papers, stationery and a small library, consisting of the following books:

Burchard's Pathology, Therapeutics and Pharmacology.
American Text-Book, Operative Dentistry.
Marshall's Oral Surgery.
Ottolengui's Methods of Filling Teeth.

We also receive three dental magazines a month, thus giving us the latest theories and progressions of our professional brothers.

Our paper work consists of making out a monthly numerical report of dental operations, which report includes number of teeth treated for various causes, kind of filling materials used, diseases of the mouth and gums treated, number and class of crowns and bridge-work inserted, tabulated list of number of each tooth treated, i. e., whether incisors, cuspids, bicuspids or molars; number of soldiers treated, number of operations or sittings; monthly report of dental operations, which gives in detail all operations, making a complete record of all soldier's mouths that come under our observations, for future use in case soldier applies for pension, disease being incurred from loss of teeth, or identification in case of death or desertion; three personal reports, one to the chief surgeon of the department we are serving in, one to the surgeon-general United States army, one to the military secretary of the army, Washington, D. C.

These reports state the order we are serving under that month, its source of authority, date and post where we are stationed, thus giving all the higher authorities a complete history of our movements, amount of work accomplished both in detail and condensed form. We also have a man detailed from the hospital corps as an assistant, when we are working with a field outfit, and at the base stations, two or more, as amount of work requires.

I arrived at my first station, San Fernando, at the beginning of the rainy season, there being only two seasons in tropical countries, "wet and dry," and in my five months' stay there had the experience of going through earthquake, typhoon and flood. Speaking of rains, you in the temperate belt have no idea of the tropical downpour; the flood gates of heaven seem opened, and the "deluge" about to be reproduced, rain continuing for a month without the sun shining, or cessation of rain.

A TYPHOON EXPERIENCE.

Upon reaching my station, the post commander assigned me a "Nipa" shack of two rooms as offices; after working hard for three days, arranging everything to my satisfaction, I started to work with the idea of accomplishing something, having been idle for quite a while. I was messing at post headquarters, about half a mile distant from my office. On the sixth day after my arrival, a typhoon started to blow both literally and figuratively. It had a clean sweep over that part of the country, as it is only about 12 feet above the sea level. The first catastrophe was the kitchen being wafted across the rice paddies, and the house seemed as if it would follow suit every minute; consequently we did not sleep any that night. In the morning, with an unknown dread clutching my professional heart, I started for my offices through streets such as they are in a Filipino village, flooded in every direction as far as the eye could reach. I quickened my steps considerably when the devastation of my office came into view—roof obliterated, one side of the house on the bias, and all floatable articles performing aquatic feats; I tell you my ambitious heart was slightly discouraged that morning, and it took me as long to move into new quarters and find my outfit as it did to settle originally.

A brief description of the before-mentioned "Nipa" shack, or provincial style of house. They are literally what the name implies—a shack. A framework consisting of bamboo poles is first made, then the roof is put on before anything else is done, so that the native will not have to work in the sun. The sides are next constructed, the sides and roof being made of Nipa plant, which resembles reeds, the leaves of which are tied together to make a kind of shingle; these shacks have from one to two rooms, and each accommodates an entire Filipino family. These are raised off the ground about three feet; this is done on account of the flooded condition of the country during the rainy season. The natives erect them in a few days.

San Fernando boasted of one native dentist, although all I ever found him doing was working silver into ornaments for the natives. He, like most of the provincial native dentists, claimed to have passed through a Manila office as an apprentice, but from observations of their operations, they must have passed in the front door and out the back. Their principal income from dental operations consisted of making a gold ornament similar in appearance to an ordinary paper fastener, round head with two prongs, which are passed through the interdental space and spread apart laterally upon the lingual surface of the tooth, to hold the ornament in position. These ornaments are only made for the six anterior, superior and inferior teeth.

After a stay in Pampanga province, I was "hiked' 'to the province of Zambeles, towns of San Felipe and Iba, west coast of Luzon, for three months, to relieve the suffering of the Twenty-fifth U. S. Infantry (colored regiment). This trip was made by the transport Kansas City from Manila through the China Sea to Zambeles coast. We were launched in small boats in a heavy surf, and when about 100 feet from shore, natives met us and carried us ashore on their shoulders. This province is a very mountainous one, inhabited by the Zambalians, "Negritos" (who are claimed by anthropologists to be the aborigines of the islands). "Igorrotes" (head-hunters and dog-eaters of Luzon, tall and straight with physique like our Indians). The mountains come to within half a mile of the coast, leaving the narrow strip of flat country for the industrious (?) Zambalian to cultivate. He is certainly the personification of laziness, leaving the work for the wife to do, caring only for hunting, gambling, and cock-fighting, which, by the way, is the national Filipino sport, and depending on his bow and arrow for food.

My work was about half completed when the troops were to move out and I was sent to Tarlac province, Luzon.

A few difficulties of the dental surgeon along professional lines:

RAPID PROGRESS OF CARIES IN TROPICAL CLIMATES.

That caries progresses more rapidly in tropical climates is an assured fact, especially among the Anglo-Saxons, and from observations it may be attributed to the following causes, all things being equal.

1st. Lowering of the vitality, and a lessening of the resisting powers of the body.

2nd. Acidity of the oral secretions. I tested 1,500 men's saliva, not only as a combination of the secretions of the parotid, submaxillary, sublingual and rasemoise glands, but tested them separately as they issued from their ducts. Result of the 1,500 cases: Fifty per cent acid reaction; 30 per cent. slightly acid or neutral; 10 per cent. neutral; 10 per cent. alkaline.

3rd. Active campaigning, scant water supply, entire time filled with martial duties, constant alertness for the enemy, and in self-preservation, with loss to appear anything but the real fighting machine, this being especially true of the troops stationed in Mindanao and the Sulu archipelago, amongst the Moros, which rendered it almost impossible for a soldier to give even the ordinary care to his person, much less hygienic attention to his mouth. To these conditions add the trouble to secure a soldier after beginning treatment; when sent for, he is either out on the firing line, doing guard or old guard fatigue duty, on a scouting expedition, or temporarily attached to some other outfit; or, about the time you were in the midst of a month's visit to some command, be ordered away, or the command get field orders; supplies fail to reach you, due to lack of transportation, by water or land, leaving you to complete a two months' detail without amalgam, cement, nerve broaches, or other necessary supplies, necessitating the use of mummifying paste, sealed in with cotton and sandarac varnish, or gutta-percha, where pulps have been extracted. It was often a serious question when out of supplies just what to do to secure permanent relief from pain and suffering, the dental surgeon being thrown on his own resources and ingenuity to accomplish it. A conscientious professional man will not extract, except as a last resort, especially if he sees a chance of saving teeth that would otherwise be sacrificed.

Let me put before you a typical case. I was ordered to go through a battalion of infantry, 450 men in the battalion, in one month, men being brought to the office in squads of twenty under a non-commissioned officer. Upon examining a soldier, find on left side one or two of the superior or inferior molars or bicuspids missing. Right side a molar or a bicuspid or both broken down and necrosed, this side bearing the whole stress of mastication. The question is, shall we extract them, leave them in that condition, or begin treatment, knowing the difficulties that will handicap us in the conservative treatment of such cases. If we extract, we save our future reputation and take no chances, for if the soldier has trouble, not understanding the conditions or disadvantages we labor under, and has to suffer with no hopes for relief in sight, we get damned for it; for over there it is not a case of getting on a train or boat and in an hour or so get relief, but in most cases it means days. If we make some excuse and put them off, in all probability they will begin to give trouble at a very inopportune time, and a kick is registered by the commanding officer of the company, that a dental surgeon visited that post and left before he finished his work. This being forwarded through military channels, everybody from the C. O. up gets a chance to express their opinion, favorable or otherwise, as the case may be, and in all probability you are called upon to explain why treatment was not furnished in certain cases. If we start in to treat, and when ordered away find root canals are not in condition to fill, we have to place a dressing in the roots, insert cement and trust to nature to do the rest. This also applies to fillings. In the great majority of cases, especially during 1901 and 1902, it was impossible to get a man for a second sitting to polish off work, consequently many of these men came home, and falling into the hands of the civil practitioner, our work was criticised, when they did not know the conditions the dental corps were laboring under. This gives you some idea, from actual experiences, what we have been up against, many of us also having to operate in tents with poor light. I speak of these conditions and causes to let you know how the army practice differs from the civil, for you must remember, in your practice, patients come of their own accord in most instances, and help you to succeed in your care of them. In the military practice we examine the men as a body and do the required work whether they wish it or not, and the fact of men being ordered to have dental work done, independent of their own desires in the matter is not calculated to secure their co-operation, as general orders require that any soldier unfit for duty, from a cause that is removable by an operation, not endangering life, who refuses to be operated upon, will be tried by court-martial and punished.

During my two months' stay at Tarlac, I noticed a peculiar custom that might interest you. One evening I went to a native dance and noticed a young girl who had what appeared to be a gold crown on her right superior central incisor. I paid little attention to the fact at the time, but the next day passed her on the street and noticed that her sister had a crown on the same tooth, and she had none. About a week later I noticed that the sister was minus her crown, and that the mother was sporting one. I watched this seeming interchanging for over a month, until one day a favorable opportunity presented itself, and I asked the original owner what kind of a crown that was which she wore the night of the dance. She replied, "bueno custombre," meaning very good custom, and told me that she would show it to me if I would come to the house. That night after supper I was on deck bright and early, and found the mother still the proud possessor of the golden head-light; it was simply a facing of gold to fit the front of the tooth, with two wings attached that were passed through the inter-dental spaces on either side of the central and bent on the lingual aspect of the central to secure it in position. This custom I found quite prevalent in other provinces, especially of southern Luzon.

After my tour of duty was up at Tarlac, I was ordered to Manila Base Station for duty. This station has equipment for three dental surgeons and a complete laboratory outfit, everything of the latest and improved pattern, the government sparing no expense to get the best on the market, electric engine, fountain cuspidors, electric motor and fans for the offices.

A FEW OBSERVATIONS ABOUT THE FILIPINOS.

Many of us of the cool-belt, picture in our imagination tropical countries as lands of perpetual sunshine, having a luxuriant vegetation, forests filled with birds decked in brilliant plumage, the natives making a strange contrast in their vestment of cotton. We mentally picture them as veritable paradises, where climatic conditions and natural resources make it possible to dispense with the necessity of toiling that we may live. The latter statement is true in a certain sense, and any one wishing to verify the fact will do well by going to our lately acquired possessions, the Philippines. "Our little brown brothers" have the art of living without work well brought down to a science. As a Filipino once remarked to me, "If you can give me any logical reason why we should spend one-third of our time working I will begin tomorrow. Why should I work any more than a monkey or dog, or any other animal? The world owes all creatures a living, and all they have to do is to hunt for it." I replied that we Caucasians look upon work as the highest and holiest thing there is, and the greatest purifier that the world has known; that work is inspiring and uplifting, has been the theme of poets for thousands of years. His reply somewhat surprised me. It was as follows: "You say work is ennobling, inspiring, uplifting, and even holy; then why is it that they who are the workers are the most despised and most miserable, and invariably receive their share of worldly wealth and goods from the small end of the horn? You Caucasians, especially the American branch, are sentimentalists, like the poets you speak of. He will write yards of poetry on the most holy subject of manual labor, and at the same time will not condescend to empty his own waste basket, but leaves it for the despised menial to perform. The worker, the theme of his lays, he will not treat as an equal, but with contempt. If manual labor, or work, as you call it, is so purifying and exalting, why is it that the one ambition of the Caucasian is to acquire enough wealth so as he can live without laboring?" His philosophy took my breath, and I replied at random: "How do you expect to live and obtain the necessities of life, if you do not perform manual labor?" My question was answered by the following object lesson: Just at this time a swarm of locusts was passing by; my companion darted after them, and catching one, he pulled off its wings and legs, and eating the remainder, calmly remarked, "The Lord always provides."

The Filipino, like all children of the tropics, has a natural antipathy for work. Some people maintain that climatic conditions in tropical countries make it impossible to work hard, and that lands of perpetual sunshine have a tendency to make people indolent.

Others maintain that necessity only makes them work, and that clearly demonstrates why inhabitants of tropical countries do not (without compulsion) work. The Filipino, in particular, is absolutely without ambition. His one object is to get through this life with as little work as possible; their country being in the tropics, its abundant productiveness supplies his wants, making it unnecessary for him to work. Hundreds of different kinds of vegetables and fruit grow wild, and at all seasons of the year, such as plantains, bread fruit, "cacho" (chocolate) guavas, comotes, mabung, the root of a plant which is similar in taste and appearance to our potato. Their carnivorous propensities are gratified or satisfied with bugs and insects, snakes and other reptiles, such as alligators, and a large species of lizard, the "Iguana". All these different dishes are delicious, so a Filipino connoisseur informed me. In the early morning I have seen the natives in Manila gathering the bugs which accumulated under the arc lights during the night, and also catching the locusts in nets, similar to our scoop net or butterfly net, and packing them in bags for future use. These bugs are dried in the sun like our mothers used to dry apples for the winter; and before eating are soaked in olive or cocoanut oil, and eaten with rice. The Igorrotes also have a custom that might interest you. Their principal diet is young dog: for a few days before killing they starve him, until the day before he is to be served up; he is then allowed to eat all the rice he can put into himself, and after an hour or so he is beaten to death to make his flesh tender, so they say, cut open and the half-digested rice in his stomach secured and served to the family, this being considered the most delicious dish.

(To be Continued).

COMPILATIONS

PORCELAIN ROOTS INSERTED IN THE ALVEOLI IN BRIDGE-WORK.*

BY DOZENT DR. RUDOLF WEISER, OF VIENNA.

More than fifteen years ago I began with success to replant filled natural roots or teeth which were fitted with artificial crowns or pivot teeth. About twelve or thirteen years ago I used such a replanted root, for the first time, as a support for a bridge. It happened to be a simple case; the patient was from Russia, and could only stay in Vienna for a short time. He had a much-decayed first left lower molar, and I was almost sure that the periodontium of the root of the second left lower premolar was diseased, together with some portion of the mandible. I ground down the molar, prepared it, and fitted a crown on it. The root of the premolar I extracted, filled, disinfected, replanted, and used as a support for the bridge. This bridge consisted of a crown on ⌈6, a crown on the replanted root ⌈5, and an isolated tooth to replace the first premolar.

The reason why I took refuge in replantation was that I could only keep my patient under observation for some five or six days. Before he left Vienna I asked him to write and let me know how he was, and he wrote some months afterwards stating that he felt quite well. The somewhat risky undertaking had thus proved successful.

At a later date Dr. William Younger, of San Francisco, demonstrated to us in Vienna the process of implanting.

Soon afterwards, in the summer of 1895, I undertook, in a special case, to fix a bridge of six teeth on a healthy second right upper molar and an implanted well-healed natural canine root, which I used as the second pier in the alveolus of the lost first premolar. This bridge was worn for three years, but at the end of that time the implanted root was no longer serviceable, and I was obliged to cast about for a new anterior pier. I selected the right upper canine for the purpose, devitalized it, cut off the crown, and enlarged the bridge by adding another tooth.

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*A Lecture delivered at the Verein oesterreichischer Zahnarzte.

Late in the autumn of 1895 the niece of the patient for whom I made the above bridge came to me for treatment. In this case I had to replace the roots of |4, 5, which were much decayed, and my aim was to disguise the artificial work in such a way that the psychical emotions of the young lady would not be disturbed. The pulp was still alive in the first left upper molar, but the crown was so much decayed that there was no difficulty in capping it with a hollow artificial crown with porcelain facing. Neither the patient nor her parents would permit of the devitalization of |3 at the time. This circumstance, and the knowledge that the implanted root in the mouth of her uncle was still satisfactory, induced me also to implant in this case a root in place of |4 and one in place of |5. Five weeks after the operation, when the implanted roots appeared to be healed in, I constructed a bridge which rested on these roots and on the living first upper molar roots.

Nearly four years afterwards, in the spring of 1899, I could see that only the tissue around the root, which had been implanted in the alveolus of the second premolar, had healed perfectly and successfully; the tissue surrounding the implanted root of |4 was granulous, and did not look healthy. As the young lady and her parents used to make long journeys every year, I deemed it my duty to provide for the maintenance of thoroughly sanitary conditions in her mouth. I took off the bridge and altered it. After removing the first loose premolar implanted root, an isolated crown was soldered at |4 on the bridge, which now rested on |5 and |6, and the bridge was refixed in position. During a long journey through Italy, a little mishap befell the bridge as altered, which led to its being removed once more by a dentist in Rome, who attached an enlargement which was set in a cavity that he drilled for the purpose in the distal contact surface of |3. Last autumn—November, 1905—while the lady was preparing for a journey to India, soft-spreading caries appeared in the left upper canine round about the cemented end of the bridge; this, in addition to the cement being dissolved within the cap of |6, compelled me to remove the bridge once more. The patient now agreed to allow me to devitalize the pulp of $\underline{|\,3}$, and to remove the crown; this she and her parents refused to permit, as already stated, when she first came to me. Further, she ordered a new bridge from me consisting of $\underline{|\,3\text{-}_{4\ 2\ 5\ 2}\text{-}6}$. As piers for such a bridge $\underline{|\,3}$ and $\underline{|\,5}$ were quite sufficient. The socket of the implanted $|\,5$ root having suffered by the repeated removing of the original bridge, I resolved, rather hastily, to extract this root, which had been implanted for ten years. The extraction, however, proved a failure, for the simple reason that such a root, unlike ordinary roots, is not set in an alveolus surrounded by periosteum. This implanted root was firmly attached to the surrounding spongiosa, which had grown upon it. I gave up the attempt at extraction, and resorted to the following treatment: I polished and cleaned the bone walls, covered them with iodoform gauze, and during the healing process —which proceeded painlessly and without reaction—I constructed a new bridge, and fixed it in position after about ten days had elapsed.

Although the three cases just described, in which I partly used an implanted root and partly a replanted root as piers for the bridges, cannot be said to be very commendable, considering the risk attending this method of practice, they are not without interest, and were not altogether failures. A fourth case proved less satisfactory.

In November, 1901, I extracted the root of a right upper lateral which was affected with a chronic blind abscess, from the mouth of a highly neurasthenic lieutenant of the navy, who was very liable to fainting fits, because he refused to have the ends of the root resected. To avoid making a plate, and to preserve the alveolus of this root, I made a bridge of two teeth, after removing the crown of the dead $\underline{3\,|}$, and fixed it on the root of this dead $3\,|$. The bridge carried mesially to the artificial canine root a Richmond crown, which replaced the crown of the lateral, and the natural lateral root which had been adequately prepared for the intended replantation. During the treatment of the chronic abscess, after extraction, through the empty alveolus—which was carried out while the bridge was in course of construction—the defective front alveolar wall visibly disappeared more and more, so that the anterior covering consisted practically only of thin gum when the time came for the setting of the bridge on the replanted root, to which it was cemented. In the course of the following two years the gum receded, and left the implanted root more and more exposed. The irritation exercised upon the gum by the root resulted in granulation and the discharge of pus, and a fellow practitioner, who undertook the later treatment of the patient, was compelled to remove the bridge and also the replanted root. Some time afterwards he made a bridge of two teeth, which consisted of a Richmond crown, corresponding to 3 |, an attached facing for 2 |, and artificial restoration of the gum.

As the results of the four cases above mentioned, and especially the failure in the fourth case, were not very satisfactory, I was led to look out for a new method of dealing with such cases, in which our aim is to prevent the absorption of the alveolus after the extraction of the roots in the front of the mouth. In my study of this subject, I was assisted by a suggestion derived from the paper of Dr. M. L. Rhein, of New York, on *Porcelain Roots,* which appeared in the Dental Cosmos for September, 1902. In this paper Dr. Rhein describes a method by which he cuts the palatine root—viz., the root of upper molars affected with pyorrhœa—strips off the soft parts of the alveolus, and replaces the natural root with a porcelain root. The porcelain roots are kept in position by a metal pin inserted vertically through the pulp-chamber. Rhein emphasizes the point that these porcelain roots, which are made smooth and of material not liable to sepsis, are tolerated by the gum tissue without reaction, whereas dead natural roots with their concretions of tartar act as irritants, and lead to granulation and the formation of pus.

After these introductory remarks, I now desire to set forth, with the aid of plaster of Paris casts and illustrations, a method which I have employed in four cases in the course of the last eighteen months.

CASE I.

In November, 1904, the widow of a medical man came to me as a patient. She had two very defective and disfiguring upper central incisors, and a loose root in |2. This lady wished to have the crowns replaced by pivot teeth. By the employment of conduct-anæsthesia at 1 | and of pressure-anæsthesia at |1, I succeeded in painlessly cutting off the crowns of these teeth and in extracting the pulps. After making two root-caps with posts for the roots, I extracted the loose root at | 2, and, using antiseptic precautions, drilled sufficiently deep into the alveolus to make it

EXPLANATION OF PLATE.

Porcelain Roots Inserted in the Alveoli in Bridge-Work.

Case I.

Figs. 1, 2, 3.—The upper central incisor crowns and left upper lateral crown with porcelain-platinum root.

Case II.

Figs. 4 and 5.—Porcelain facing with root made of Jenkins' prosthetic porcelain, with cross-beam, which has a post and gold inlay on each end of same.

Case III.

Not illustrated; treated in same manner as Case II.

Case IV.

Figs. 6, 7, *7a*, and 8.—Left upper lateral crown with porcelain root, canine root with post, first premolar crown, and second premolar crown with post.

Editorial Note.

Dr. Weiser uses this system of notation.

Right.	Left.
8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8

4
5
3
2
1
6
8
7a

long enough to receive a porcelain root of the same length as the natural extracted root might originally have been. By using the handle of a Donaldson's pulp extractor, after it had been boiled in an antiseptic solution, covered with Stent's impression composition, which I inserted in the newly-drilled alveolus, I secured a perfect impression of the alveolus. Directly the impression was withdrawn from the alveolus, I inserted a roll of iodoform gauze, and ordered the patient to return for treatment the following morning. Meanwhile I constructed a hollow root of platinum plate. On the inner part of the circumference of this hollow root I soldered with fine gold a solid post, prism-shaped, which served as a guide for the right position and as a starting point for the plaster cast, and later on as the joint between the platinum root and clamps of the porcelain facing. With the two root-caps of 1r 1r and the mounted platinum root in position, as described, I now took in the ordinary way, at one and the same time, the plaster of Paris impression and the articulation. The two root-posts and the axis of the platinum root proved to be parallel, and remained snugly set in the impression. I wanted not only to solder and melt the substitute for |2 as an addition to the crown of |1, but also to solder the crowns of 1| and |1 together in order to prevent any spontaneous change of position in the course of years. After determining the various positions of the three porcelain facings, I commenced the construction of a bridge with Jenkins' prosthetic porcelain. The lingual aspect of the crowns was modelled in the usual way, but the root of |2 was treated in the following manner: I first sawed away the front half of the platinum root, and then packed Jenkins' prosthetic porcelain in the remaining half, and also round the post which was soldered to the pins of the porcelain facing, and round the pins themselves.

I especially desire to mention that, during the three or four days which I occupied in making the bridge, the artificially enlarged alveolus was kept filled with strips of iodoform gauze, and that before and after each time of trying-in the artificial porcelain-platinum root the alveolus was syringed with a 1% solution of chinosol. I purposely did not hasten the work or attempt to implant the porcelain-platinum root too soon, my aim being to give the more or less affected artificially enlarged alveolus time enough to throw off all diseased tissue under the action of the iodoform, and, if there was an abscess, under the action of nitrate of silver, applied in pencil form.

The insertion and fixing of the bridge (see illustrations 1, 2, 3) were accomplished without difficulty. From the very first the artificial porcelain-platinum root was tolerated without reaction. The gum attached itself firmly to the neck of the root, and was extraordinarily fresh and healthy in appearance. In this case, and also in Cases II. and III., I used porcelain the color of the teeth for building up the root, my reason being that, should the gum and alveolus subsequently recede, the artificial root would have a normal appearance and look as though the neck were exposed in a natural way.

I need hardly mention that, just before setting the porcelain-platinum root in position, I held it over an alcohol flame in order to destroy any septic germs that might be present. After the root-caps of 1 | 1 had been filled with newly-mixed cement the roots were dried out, and just before the caps were forced into position the roll of iodoform gauze was removed from the alveolus.

CASE II.

The second case was that of a lady between forty-five and fifty years of age, who had suffered for years from pyorrhœa alveolaris localized on | 1. The most careful removal of the tartar from the gum-pockets, treatment with nitrate of silver, trichloracetic acid, and massage, only produced temporary relief. There was nothing to indicate the use of a relief band, the articulation was not faulty, nor was there nightly gnashing. The tooth became more and more elongated, until at last the patient one day came to me in great pain, and with a paradentaric abscess the size of a pea corresponding to the alveolar jugum. With a circular knife, under ethyl chloride locally applied, I cut a circular piece from the wall of the abscess; all pain and severe throbbing ceased. By grinding the enamel and superficial drilling in the region of the tuberculum I satisfied myself that the pulp was still alive.

Two years afterwards the *periostitis expulsiva* of this tooth was deforming the patient, who was deeply depressed; the tooth had become so elongated that I was obliged to extract it. The examination of the tooth, notwithstanding its atrophied root, showed that bleeding was still present in the pulp tissue. I proposed to the patient that I should devitalize 1 | and | 2, drill out the alveolus of the extracted 1 to the depth that it must have originally been, and insert in it an artificial tooth complete with root, made of an ordinary porcelain facing and Jenkins' prosthetic porcelain. The tooth so made was to be connected to a cross-beam with platinum posts, and the posts were to be cemented in the root-canals of the neighboring teeth.

After some consideration, the patient, who dreaded the pain attending my proposed treatment, agreed, and was relieved from that very moment, as by means of pressure-anæsthesia I succeeded in extracting the pulp quite painlessly.

Figs. 4 and 5 illustrate the case, and show how I prepared the cavities of the neighboring teeth by Rhein's method, but with this modification: I deviated from Rhein's method in my manner of connecting the artificial tooth with root to the neighboring teeth by constructing a gold inlay on each side, which was melted in a platinum foil matrix, and corresponded to the connecting point of the cross-beam and the root-post. As thus made, the complete appliance was finally cemented in position.

From my remarks on the history of this case, it will be gathered that the tissues were greatly altered pathologically; yet the mucous membrane, periosteum, and alveolus tolerated the insertion of the root of the artificial tooth; there was no pain or sign of reaction. After a few days the appearance of the tissues which covered the root was perfectly healthy, and up to now, at the end of eighteen months, it remains so, and there is no shrinkage.

Case III.

In Case III a wrong diagnosis led me to extract $2|$. Considering the misleading circumstances attending the case, the wrong diagnosis was somewhat pardonable. The patient was fifty-two years of age, and possessed an excellent constitution. He suffered from pyorrhœa alveolaris, and had lost a few molars owing to their becoming loose. There were still a few more teeth in his mouth affected with the same complaint which had the appearance of *atrophia alveolaris proecox.*

In May, 1905, the patient appeared with pain in the $\underline{2|}$, which was perfectly free from caries. The tooth was sensitive to the touch and a little loose. I expected the presence of a paradentaric abscess as a consequence of pyorrhœa alveolaris. I searched in vain for tartar in the gum-pocket. I opened it to half the depth of the root, syringed it with H_2O_2, inserted a concentrated solution of nitrate of silver, and after three days the conditions were improved. At the end of a fortnight the patient reappeared with still greater pain than at first, and complained especially about his disturbed nights. I repeated the above treatment, and in addition I touched the pocket with iothion. There was again apparent improvement. At the end of June the patient asked me to relieve him definitely of the torturing tooth, as he had very soon to undertake a long journey. I extracted the tooth, and to my surprise I found, upon cutting it vertically, that it contained a decayed gangrenous pulp; it was thus a case of pulpitis idiopathica in a patient affected with pyorrhœa alveolaris.

To provide as well as I possibly could an ideal substitute for the extracted tooth, I followed the same treatment as in Case II.

The porcelain root was tolerated from the first moment without reaction, and today, after more than nine months have elapsed, no shrinkage of the gum or of the alveolus can be seen.

Case IV.

The carrying out of my method in Case IV was a little more complicated. The patient was an actress, for whom, about twelve years previously, I had put a Richmond crown on the root of $\underline{|2}$. During her wandering life, in the performance of her professional duties, she lost several of her back teeth, and when she came to me again for treatment, in the summer of 1905, she was wearing a gold plate with five teeth upon it, which was secured to the canines with treacherous clasps, and to the back teeth with less visible clasps. This gold piece disturbed her while speaking and singing, but the chief reasons of her discontent were the great pain caused by the Richmond crown attached to the root, and the sight of the gold collar, which, in the course of years, had become visible.

These disfigurements were always a stumbling-block to her success with the various theatrical managers with whom she had to deal, and the pain in the incisor root called for a radical remedy.

As it would have been almost impossible to remove the Richmond crown from the root, owing to the highly sensitive and hysterical nature of the patient, and as I assumed that the root—which was affected with chronic periostitis—would show an advanced state of resorption, I did not for a moment consider it desirable to attempt to resect the end of the root; and if I had, the patient would, most likely, not have agreed to it. To provide a substitute, in accordance with the artistic calling of the patient, which could not be recognized, I adopted the method illustrated in Figs. 6, 7, *7a*, and 8. After extracting the root with the Richmond crown upon it, I found, in the first place, that there was an abscess cavity at the bottom of the alveolus, which was discharging pus, and, secondly, that the root showed all the anticipated conditions of heavy resorption. I rinsed the cavity with peroxide of hydrogen and wiped the walls with a pencil of nitrate of silver. I then inserted a roll of iodoform gauze for the purpose of preparing the alveolus for artificial enlargement and widening a few days later.

The next day, partly under conduct-anæsthesia and partly under pressure-anæsthesia, I extracted the pulps of the following teeth: of the canine, the second left upper premolar, and the right lateral upper incisor. I must mention that in this case I was not satisfied either with the conduct-anæsthesia or with the pressure-anæsthesia. With | 5 and with 2 | the effect was rather weak. I only succeeded with | 3, under pressure-anæsthesia, in quite painlessly extracting the pulp.

As appearance was of more importance than anything else to this patient, and as, according to experience, the bands on crowns are very liable to become visible in the course of years, especially the bands on canine crowns, I decided to leave the labial surface of the natural crown intact, and to connect the bridge in the root-canal of this tooth by anchorage according to Rhein's method. Then, to avoid shrinkage of the gum and of the alveolus in the region of the extracted | 2, I constructed a porcelain root, in the manner already described, which I covered with pink enamel at the cervical margin on the labial surface, in order that no defect might be visible should the gum recede. The axis of the incisor root and the pin in the canine were parallel, but the root-canal of | 5 was at an angle to them. To bring it in line, I attached to the root-cap of | 5 a post, threaded on the crown end, which was set parallel with them, and to which the end of the bridge was screwed with a conical screw.

During the preparation of the bridge, the discharge of pus did not cease from the abscess cavity in the upper end of the alveolus of the incisor, and when the roll of iodoform gauze was lightly pressed into the alveolus it caused slight irritation and considerable pain. This condition only disappeared after I had cut out some mucous membrane and periosteum with a circular knife from the upper end of the alveolus, and widely opened the front wall with a drill. In this way I secured free drainage for the secretions from the old abscess cavity.

After this the case proved satisfactory, and healed as well as the three cases previously described.

A definite judgment upon the practical realization of this method cannot yet be pronounced, owing to the shortness of the time which the cases have been under observation—only a little more than eighteen months—but if it should prove to be a reliable method, our science and art—one of the youngest daughters of surgery—will be entitled to the praise and acknowledgment which my friend Sanitatsrath Dr. Brenner, one of the most distinguished surgeons in Austria, has repeatedly bestowed upon it, in these words: "To dentistry is due the merit of having produced prostheses, which in functional and cosmetical respects have accomplished such ideal results that they are almost equal to a *restitutio in integrum.*"—*Quarterly Circular.*

GROUND PORCELAIN CORNERS WITH MECHANICAL ANCHORAGE.*

BY P. B. M'CULLOUGH, D. D. S., PHILADELPHIA, PA.

The prepared shape of the cavity is that indicated by the lines of decay or fracture. It may form two plane surfaces with one angle (Fig. 1), or one of two other forms, each with a plane surface. For a corner with one angle, the vertical plane forms an obtuse angle with the base, thus making two flat surfaces to be fitted. The vertical plane, A, may be formed rapidly with abrasive paper disks, and the surface made flat by means of the side of a vulcarbo disk and a Murphy file. The cervical plane, B, is finished with the edge of an abrasive disk and a narrow file. Any make of detached pin crown best suited in mold and shade is selected and ground to fit the space.

The section to be used is outlined with a corundum disk and broken off. The vertical plane surface is first ground to size, then the cervical end is ground to proper length, when both surfaces are trued on the side of a fine stone on the lathe. (Fig. 2.) Throughout, care must be observed not to chip the edge.

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*Clinic at the Pennsylvania State Dental Society, 1906.

A cavity is cut in the tooth so as to be shallow at the cervical angle with a flat base and pointing to the incisal edge (Fig. 1), where it becomes deepest, forming the only undercut, so that the matrix is drawn by turning out from the cervical end or angle. In this cavity is adapted 2-1000 platinum. Should the puncture be a considerable one, a second smaller matrix may be shaped over the puncture and adapted with wet spunk, which is left in place until invested. The matrix is filled flush with any filling gold packed lightly, and 22-k. solder flowed through. This inlay, returned to the cavity, is ground flush with the edge of the latter, taking care not to injure the enamel.

Fig. 1.

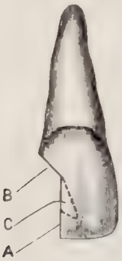
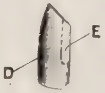


Fig.



The porcelain section is grooved vertically with a diamond disk, as a starter only; then a piece of clasp-gold wire, F, of about No. 18, gauge, is held in a screw chuck sold for the engine (Fig. 3), and with this wire used like a drill, the groove is cut into from the cervical plane surface, using carborundum powder in glycerin as the abrasive. This hole (Fig. 2, E), is so formed that while it is open on the vertical plane surface where the wire is exposed, it can only be withdrawn from the end by which it enters. This wire is cut off flush with the base of the inlay, and if necessary its exposed side is ground flush with the flat porcelain surface.

Fig. 3.

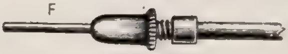


Fig. 4

With the wire point in the porcelain, and the gold inlay in the tooth, the porcelain is rubbed to and fro on the tooth with wet pumice to finish the joint. Having the mouth napkined, the sections washed and dried, the inlay for the tooth in place, then the wire point, in the porcelain and warmed, is touched with the faintest particle of hard wax, a blast of hot air directed on the gold inlay, and the porcelain pressed to place. With the withdrawal of pressure the porcelain drops off, leaving adherent the gold sections, which are then removed, invested, and a particle of low-karat solder placed at a convenient spot to unite the sections. (Fig. 4). With one mix of cement the gold is first placed, then the corner slid to place and held.

If, when the decay is such that after the vertical plane at the labial surface has been finished there still remains the unprepared edge of the cavity more extensive on the palatal surface, then this part is prepared independent of the labial plane, the matrix adapted over the edge and filled with the melted gold, so that when returned to the cavity the exposed surface is cut flat and flush with the labial enamel edge. By this means the joint with the porcelain on the palatal surface is made with the gold, thus obtaining a plane surface without cutting away labial enamel which it may be desirable to retain.

Fig. 5.

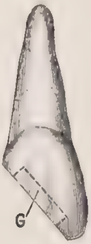
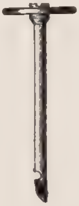


Fig. 6



When the case presented admits of being ground to a plane surface the operation is made much easier. With the finished plane surface extending from a point at the incisal edge to the gum margin (Fig. 5), a cavity is cut of uniform depth and with a flat seat, G, and, as above recommended, a gold inlay is made. After the porcelain has been ground to fit, a small round clasp-gold disk is made of about No. 22-gauge, which is held on a screw-disk mandrel (Fig. 6), and the gold used with carborundum powder to cut a semi-circular groove in the porcelain. (Fig.

7, H). When this groove is cut as deep as the mandrel will allow the disk to go, the disk is cut in halves, one piece filed flush with the ground surface of the porcelain, and, as in the first case, waxed to the inlay in the tooth, removed, invested, and soldered. (Fig. 8).

It will be seen that in this class of cases a very delicate tapered point of porcelain remains at the joint with the tooth at the incisal edge, supported only by cement—which is no support; therefore, since it cannot be expected that this point will last without protection, the following is offered as being used always with this as well as with the class first described, but was not given before in order to avoid repetition:

Fig. 7.

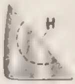


Fig. 8

After the gold section has been placed with cement and the porcelain is in position ready to press to place, a piece of No. 60 gold foil or a gold roll is inserted in the joint to about one-sixteenth of an inch, then the porcelain is pressed home and held until the cement has set. There being free escape for the cement throughout the joint, and it being least confined at the incisal edge, it will be seen that under pressure the cement is practically eliminated at this point, leaving the gold as a permanent support. (Fig. 9, I).

Fig. 9

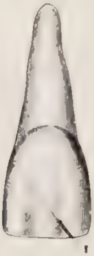
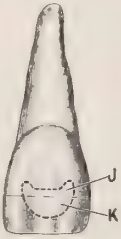


Fig. 10



That this gold cannot be seen may be believed when the thickness of No. 60 foil, as seen looking at its edge, is considered.

When the restoration is one where the entire incisal edge is gone, no change in the technique is indicated. The cavity in the tooth is prepared for the inlay (Fig. 10, J) and the porcelain cut with the gold disk, one-half of which, K, is soldered to the inlay, J. Of course, in this class of cases the gold protection for the porcelain is not required.

The head of the mandrel, as well as the head of the screw carrying the circular gold disk to grind the cavity in the porcelain, is cut down, so that without the heads the disk may penetrate deeper in the porcelain.

Each of these cases presupposes vital teeth; in the first two, if devitalized, instead of avoiding the pulp by cutting toward the incisal edge, anchorage would be obtained by inserting a cone-shaped tube in the canal, filling it with melted gold and proceeding as above recommended.

The increased strength obtained by this method, using the first case described as a basis of measurement for comparison with the methods usually practiced, is shown by consideration of the following features: The inlay fitting the cavity in the tooth is so shaped that it can be dislodged only by turning it out and down from the cervical end. When the wire fitting the porcelain is soldered to the inlay, the former can be detached only by drawing down; thus every possible direction of the application of force is resisted mechanically by the gold bridging the joint, the cement serving to keep the corner from falling in the direction in which no force is applied.—*Dental Cosmos.*

REPORT OF DR. TAGGART'S NEW PROCESS OF MAKING GOLD INLAYS, ETC.*

BY DR. HART J. GOSLEE, CHICAGO.

The chair desires to ask the indulgence of the members for a few minutes to recall to your minds the remarks made by our confrere, Dr. Taggart, to this society, at its November meeting, with regard to a new process of constructing gold inlays which he had developed, and, if it is your pleasure, to make a public announcement of that process to you.

First, however, I want to say that I am acting entirely without authority from Dr. Taggart, and yet I believe that he is close enough to the members of the Chicago Odontographic Society for me to venture to tell you of the reception which he received Tuesday night, January 15, before the Odontological Society of New York City on the occasion of the first presentation of his method. He promised he would tell you as soon as he could just exactly what he had done, and if he were here tonight I am sure he would be happy to do it. I fancy, however, that he would probably begin by making an apology to the members of the Chicago Odontographic Society for not having first given them this process, but, by way of explanation, I might add that he was invited two years ago to read a paper before that society, and declined because he felt he did not have anything sufficiently new or interesting to go that far to present, and so he did not go. Last year he was again invited and because of the invitation being extended a second time by the same society, he felt that he had to accept, and afterward that he must then do something to make good. He therefore accepted the invitation and at once set about to do something which would be worthy of the occasion.

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*Proceedings of the Chicago-Odontographic Society, January 18, 1907.

And, gentlemen, as I said before the Odontological Society of New York City in opening the discussion on his paper, I believe that Dr. Taggart has, by the development of this process, accomplished something which is destined to mark the dawn of a new era in dentistry. I believe he has completely revolutionized the filling of teeth with gold by the inlay method.

Some of you may possibly think this a radical statement, and, indeed, my friend Dr. Johnson said to me, after I had described the process to him: "Goslee it sounds good, but because of your friendship for Taggart, are you not a little too enthusiastic?" I can assure you, I do not feel that I am, and that I would think just as much of the method if I never heard of Taggart. Therefore, after this explanation, I am going to tell you what the process is in order that a report of it may go into the records of our proceedings.

Dr. Taggart's work has been along the lines of *casting* gold. Of course, such an idea is not new. The late Dr. William H. Atkinson, twenty-five years ago, worked for years in trying to cast gold, but without success, and finally, becoming discouraged, he abandoned it. Many others, including Carroll, Zeller and R. C. Brophy, have worked along the line of casting aluminum for years, but Dr. Taggart has devised a method not only for casting gold, but for casting any metal which can be fused with a small oxhydrogen blowpipe, and in a mold of investment material, with a reasonable degree of absolute certainty. I will describe the method to you, and you will readily see that it is not only applicable to inlay work, but also to plate. crown and bridge-work, and therefore practically unlimited in its application.

After the preparation of the cavity has been carried to the proper point for an inlay, he makes one of wax. The form of wax used is no secret. He tells you its composition and that it is filtered thoroughly so that there is absolutely no foreign substance in it. He first rolls up a ball of this wax, works it over the burner until it assumes the proper plasticity, coats the cavity with liquid vaseline and then packs the wax down into it, and has the patient bite. As soon as the patient has closed the teeth firmly together he then unseats the wax with a pointed instrument and has the patient bite again, thus forcing it back into place. He then chills it with cold water, removes it and trims it down to the desired form of the filling, thus making a wax filling. This is really all which the process actually demands. If we can fill teeth with wax, or make any form which we can get into the flasks—if we can first make these in *wax,* we can then reproduce them in gold.

After he has finished the wax filling, contoured and carved it and done everything to be desired in a permanent gold filling, he chills it and removes it from the cavity. He now takes the filling in his fingers, picks up a piece of wire (about 16-gauge), to be used as a *spruc,* holds one end over a Bunsen burner, warms it up, and sticks it into the center of the wax filling. We now have this wax filling anchored to the end of this wire or sprue. He then mixes a small amount of investment material, which is finely pulverized, and with a pointed instrument packs it carefully around the wax filling.

If he were to attempt to cover it entirely with investment material by jolting it down, as cases are ordinarily flasked, he says he would simply cause a coalescence of ten, twenty, or perhaps a hundred small air bubbles into a large one, and he therefore avoids any jolting, and so, instead of mixing a large quantity of investment material at first, he only mixes a small amount and simply packs this all around the filling, leaving the other end of the sprue exposed, and then places it aside until crystallization has taken place, after which it is invested in a flask.

The flask consists of a heavy brass ring about two inches in diameter, which fits on a base having an elevation in the center, and a small perforation in the center of this elevation.

When crystallized he takes up the partially invested inlay and inserts the exposed end of the sprue into the perforation in the center of the elevation on the base of the flask. He then adjusts the ring to the base and fills in all around the filling with the same investment material. After this is crystallized he turns the flask over and lifts off the base, and then what do we have? We have a depression in the center of the investment material made by the elevation in the center of the base of the flask, and in the bottom of this depression is the end of the sprue, which extends down to the wax filling. He now takes a pair of pliers and gently pulls this out, and we then have a crucible, with a channel leading down to the wax filling.

And now here is what Dr. Taggart has accomplished: He has devised a means of making a casting mold, crucible, channel and all, in one piece. Heretofore everyone who has made an effort to cast metals from gold down to tin has felt it necessary to make the mold in two or three sections. To avoid this is the reason wax is used, and when the mold is now placed over a Bunsen burner and the bax melted and burned into the mold, by having pure wax *no residue* is left.

The mold is now heated and then placed in an automatic machine. This machine has three features. It consists of an oxhydrogen flame on one side, a compressed air tank on the other side, and a lever which closes the flask air tight and automatically works both of the other features at the proper time. After heating the flask containing the wax until all of it is burned out and absorbed by the investment material, and the latter becomes thoroughly dry and well heated, he puts it in the machine, takes an ingot of gold, preferably 22-karat plate, and places this in the crucible formed in the top of the investment material, lights the oxhydrogen blowpipe and fuses the gold. He does not stop at the fusing point, but carries it beyond, until it is practically boiling. At this point he comes down on the lever and automatically the oxhydrogen flame is first turned to the side, an asbestos packing covers the top of the flask and crucible, and the compressed air is turned on, and very quickly an exact reproduction of the wax, of whatever form it took, is made in gold.

When the filling is cast, which takes but a moment, you open the machine, lift off the flask, throw it into cold water, pull the ingot of gold out, wash it off, saw off the stem of surplus gold, and you have a filling which fits the cavity, whatever shape it may have been, to perfection, and one which requires but little finishing.

The result gives you a more accurate fit to the cavity than it is possible to obtain by burnishing a matrix, and the method also gives you the advantage of making a hollow inlay if you wish, and if the proportions of the cavity will admit, or of making any irregularities in the under surface which you may desire as a means of affording mechanical retention to the cement.

Dr. Taggart gave a clinic in New York City on Tuesday afternoon at the office of Dr. M. L. Rhein, at which he made a large contour filling involving the distal and entire occlusal surfaces of a lower molar in twenty-nine minutes.

I felt it my duty to tell you about this achievement, and I want to say also, in justice to Dr. Taggart, that probably no one has ever gone to New York and created the spantaneous enthusiasm that he did. He was vigorously applauded and heartily congratulated by many of the most distinguished men of that city, and I am pleased that it is my province now and here to give you an idea of what he has done for dentistry (applause).—*March Dental Review.*

SUGGESTIONS

REMOVING GLAZE FROM CARBORUNDUM STONES.

W. H. Tweedle, Hopedale, Ill.

To renew carborundum stones that have become glazed from grinding down teeth containing amalgam fillings, place them in a beaker and cover with a 50 per cent solution of nitric acid, allowing them to remain for two or three hours. Remove and place in a strong solution of sodium bicarbonate for several hours that the acid which has been absorbed by the stones may be neutralized.—*Dental Review.*

METHOD OF MAKING AN OPEN-FACE CROWN.

W. E. Dieffenderfer, Washington, D. C.

After preparing the tooth in the usual way, a wire measurement is taken, and an impression of the tooth is made in plaster. Cut away from the cast the adjoining teeth, and with a fine-pointed instrument clearly define the gum line. The wire measure is now placed on the cast, and the tooth trimmed as far as it is intended that the band should reach under the gum. Make a die of the whole in Melotte's metal, also a die and counter-die of the posterior aspect of the tooth. A piece of tin foil is cut for a pattern, placed on the lingual surface of the first die, and burnished into position. The front is then cut out, allowing for an overlap on the cutting edge, and also for a lapping of the band in front. The gold plate is then cut according to the pattern, and placed on the second die, representing the posterior surface of the tooth. This is held on the cast and partly swaged with a horn mallet to prevent the plate from slipping when placed between the die and counter-die. The swaging between the dies is then finished with a hammer. The back of the crown will now fit accurately, and it should also fit the first die.

The open band is at this stage of the procedure burnished around the front part of the first die, and by holding the back in position with the thumb, it is made to conform accurately to the die. The ends of the band are forged thin where they are to lap, and the place where the band is to be soldered is marked. We now have the back of the band fitting the die accurately, with the overlap and the sides of the crown flaring. The flare is now hammered to place, and the crown should fit the die and the plaster cast perfectly. The opening in front is now cut with a stone on the engine, the band is reinforced with 20-k. solder, and the crown is finished in the ordinary way.—*Dental Cosmos.*

EXTRACTING IMPACTED LOWER THIRD MOLARS.

W. T. Chambers, Denver Colo.

A satisfactory method of extracting impacted lower third molars will probably never be found. To remove them without injury to the second molar and adjacent tissues remains a difficult operation. Fully twelve years ago Dr. Slonaker, of Chicago, advised devitalization of the third, and by diamond disks or stones cutting off part of crown, which would permit remainder of tooth to come forward toward second molar, the amount of crown removed determining the distance. Those who have attempted the use of disks and stones for this purpose have found how difficult it is to use them of sufficient diameter to cut the crown of third molar and at the same time not lacerate the cheek and tongue. If the crown of second molar is long, or standing much above the third, the difficulty is increased, as the diameter of stone or diamond disk must be increased to reach the third molar.

During the past year several have been removed in the following manner: With a sharp edge stone or diamond disk. the enamel of the exposed portion of the crown of the third molar is penetrated to the dentine. With a spear headed drill in the contra angle hand piece a small cavity is made in the dentine. Larger drills are now substituted until a good sized cavity is secured, depending upon the sensibility of the tooth. The object is to get a cavity that will enable the operator to apply arsenic, and seal it securely, without danger of getting the preparation on the surrounding tissue, which so frequently almost covers this class of teeth. The patient can assist the operator greatly in holding cottonoid to depress the tongue, and with everything in readiness the devitalizing agent can be placed and sealed with cement. In five or six days the crown or a large part of it can be removed with burs. Instead of attempting to cut through the enamel at once the dentine is removed the width of the bur, so we have a groove extending entirely through the dentine, leaving only the buccal, lingual walls and what would be the mesial wall of enamel if tooth were in its proper position. This much can be accomplished without the slightest pain. With sharp fissure burs the buccal and lingual enamel walls may now be cut and unless the burs are permitted to slip and plunge into the soft tissues the operation is not a severe one in any way. The fissure burs seem specially indicated for cutting the enamel walls on account of the long cutting surfaces and the power of the operator to control them. By placing one of these burs in the cavity or groove with the head of contra angle hand piece slightly inclined toward the cheek, the buccal enamel wall may be cut with little liability of the instrument slipping. In cutting the lingual wall the head of hand piece should be inclined toward the tongue. If it is impossible to completely separate the section of crown by this method of cutting, the remaining mesial wall can be broken by an elevator as soon as the patient is under an anesthetic. This portion of crown removed permits the moving forward and upward of remainder of tooth.—*Dental Review.*

IMPRESSIONS.

E. M. Kettig, Louisville, Ky.

Full upper cases divide themselves into three classes, hard, medium and soft. Where the upper is bony and soft tissue scant, plaster is good; so is any other impression material when properly used, for the reason that the parts are unalterable, and whether the material we use be soft or firm when introduced, it plays no part in the construction of our work, provided of course the impression be exact. Where we have an upper arch that is both hard and soft in areas, we have a different condition to deal with, and must have a cast on which to construct our denture, different from the conditions of the mouth in the state of repose. If our cast should be just as the mouth is without pressure applied against the palate, and we constructed the plate thereon and then subjected that plate to pressure in eating, there would not be an equilateral amount of pressure and the plate would rock. To avoid this use a material that will require some pressure to displace or compress the soft parts in the mouth and your cast therefrom will represent the conditions of the mouth more nearly as in the act of eating. Modeling compound is well suited for taking impressions of this kind, but plaster and compound are more ideal according to my experience. Select the proper tray, warm the compound and take the best impression you can obtain. Now cut out an even quantity of compound, say an eighth of an inch all over the surface of the impression and somewhat roughen its surface; then mix plaster not too thin, and place an even layer a little thicker than what you removed in compound. Wait until the plaster begins to stiffen, and carefully insert in place. Use considerable pressure, for you want the soft tissues to be compressed. The compound you used to get the first step, confines the plaster, acts as a matrix to hold it against the area to be covered, drives the plaster firmly against the tissue, and gives a reproduction of every fine line in the mouth. This, I believe, is not to be accomplished if you should attempt an all plaster impression. The plaster could not be confined within the tray to take advantage of the compressibility of the soft tissues, which is so necessary in the proper adaptation of a plate.

The third class of cases gives us the most concern. Here the arch is soft and flabby. In some cases the ridge, if not gone, is soft and yielding, in extreme cases no bony parts exist at all. Here plaster is contraindicated as a material for impressions. And the softer the mouth, the more it is unfit for the work.

My plan for taking impressions of mouths extremely soft is to take the best possible impression in modeling compound, then chill it until set and trim out the entire surface there of about one-eighth of an inch. Then warm up and soften more compound and evenly spread it over that already in the tray. I usually select S. S. White compound to get the first impression, as it takes a little more temperature to soften it, and it does not become quite so plastic. Then the second batch I employ the quick setting, lower temperature compound as the Detroit, or some other similar make. When this is put in for a final impression it should be quickly handled, not to chill in manipulating or to heat up the first compound used. It will take some pressure to secure the impression, as the tray and the first compound used will act as a matrix to hold together and confine the second and softer preparation, and force it well against the tissue, taking advantage of all the compressibility of the tissue possible. Plaster in these cases does not fill the bill, for if we exerted enough force to compress the tissue it would be pressed out of the tray and parts of the mouth would be in contact with the tray.

In lower full cases very much the same methods are employed. The most important locality is at the rear of the lower arch and the lingual side. Getting an exact impression of the ridge low down under the tongue at the sides is necessary, but difficult to do with the ordinary trays. Those with an extra lingual flange are the best, so as to drive the impression material home to adaptation. I think it best in both full upper and lower compound impressions to test your impression, after thoroughly chilling with water, by reinserting into position. If after pressing into position they do not adhere so as to cling to the parts and upon removal need some forced to do so, they are, to be condemned, and a new trial made by cutting out the surface of the impression as already described. I will say this, however, some mouths have much better adhesion than others, and why, I am not always able to say; but I have noticed that in a few lower cases, very pronounced adhesion is found and always to the joy of the dentist.

In partial cases even more difficulty presents and any impression material used should be firmly pressed around the teeth remaining and in between them, and so removed as not to show by pulling or alteration, a false position or shape of the tooth. If you have made a partial plate and have the misfortune to have a misfit, all your efforts have not been lost, for the misfit plate with the teeth removed makes the best impression tray for that case that you can get. File it so that it will loosely fit the mouth and then cover with warm compound (the low temperature variety), and quickly and firmly press to place, and while held in that position with the fingers of one hand, with the other fingers press the material well around the natural teeth. It is not always necessary to secure the buccal surfaces where the teeth lean or are bell crowned in shape, as the plate does not reach those surfaces.

In difficult partials, all manner of trays are invented, especially if the natural teeth remaining are very irregular, but one of the best I can recommend is to make a vulcanite from a cast as near the conditions as can be secured minus teeth. One going over the natural teeth and covering them hoodlike; after filing and fitting so as to pass into position loosely and comfortably, prepare your impression material and spread it into this vulcanite tray and you will be able to force the material where it will give the best impression of the parts. Paralleling the leaning teeth in partials is recommended as well as using soap, vaseline and other preparations to make them slippery.—*Dentist's Magazine.*

NOTES ON LACTIC ACID IN ROOT CANAL TREATMENT.

Basil Jones, Sydney, N. S. W., Australia.

I wish to say a few words on the cleansing of root canals by means of lactic acid, after the removal of gangrenous pulps, and on the use of lactic acid for the removal of discolored dentine in deeply seated cavities. It would not be out of place if I related my procedure with the drug for cleansing root canals. The actual decay in the cavity being removed, and the pulp chamber well opened and cleaned, I flood the cavity and chamber with absolute alcohol. Then dry out well. Non-irritating antiseptics, such as oil of cloves, cinnamon or creosote, being sealed in the cavity, I dismiss the patient, the canals not being touched this sitting. Having given the antiseptic two or three days to produce its effect, at the next sitting the putrescent matter of the canal is gradually worked out, care being taken not to force any of the matter through the apex. Once all the debris is removed, I cleanse with alcohol and start with cotton attached to a broach to work concentrated lactic acid into the canal, and continue until the cotton is withdrawn perfectly clean. Then a Donaldson bristle is used to remove the surface of the dentine, which may be slightly infected. This done, the canals are washed, dried with alcohol, and filled permanently. I have used this method for the last two years with marked success. Up to that time I always resorted to the sodium dioxide method, followed by a forty per cent. solution of sulphuric acid if enlargement and further cleansing were necessary. It is a well known fact that sodium dioxide produces its good results by forming hydrogen peroxide and bleaching the dentine. Lactic acid does the same thing in a somewhat similar manner. It dissolves out the calcium, and with it removes all discolored organic matter.

I have now treated, I suppose, a hundred canals with lactic acid, and can safely say have never had periodontal trouble. In fact, if the acid is forced through the apical foramen, it produces a sedative rather than an irritating effect. That is more than I can say of sodium dioxide.

To remove discolored dentine in deeply-seated cavities, I merely swab out the cavity with the concentrated acid, and after allowing it to remain there a few minutes, wash out well with water and dry with alcohol. I continue this until the discoloration has disappeared. Whether or not this lactic acid brings about a brittle effect upon the tooth structure, is a question I have not determined; at any rate, I have seen no bad results so far. The lactic acid used is the concentrated form, produced, I believe, by the fermentation of the sugar of milk, and resembling the natural lactic acid found in the saliva. —*Australian Journal of Dentistry.*

STERILIZING, POLISHING AND GRINDING STONES.

Brush clean with soap and water with a plate brush, and then dip in a five-per-cent. solution of formalin in alcohol.—*Tri-State Record.*

SETTING AN INLAY.

Dr. W. H. Taggart, Chicago, Ill.

You go into a foundry and there is a pile of sand, upon which the moulder puts his moulding-board to make a base. If he has put it on a rough layer of sand, and put his whole weight on it, he wouldn't get it seated. What does he do? He shakes it a little bit, and finally it bases itself. In other words, the grains of sand would naturally lie on top of each other with direct pressure, but by a sliding and wiggling motion you will roll one grain over the other until finally you can get the board seated on a flat surface of sand. In the same way you can get the inlay much closer than you could by putting on ten times the amount of direct weight, which so many dentists do when they put in there a wedge to push the inlay to its place. When the surplus of cement is squeezed away you see quite a decided line which you are almost certain has much more width to it than 1,100th of platinum, showing that putting direct pressure on the inlay has not squeezed out the cement, because the particles of cement rest on top of each other, and could not get away.

In putting in an inlay instead of putting that kind of pressure on it, I put it to its place and draw a wide piece of tape over the inlay, the same as though we were polishing a gold filling with a polisher. I take a piece of tape a couple of times as wide as the filling, and as you pull it through it will always have some surface of the tape in contact with the filling. Pulling it through that way two or three times wipes off all this surplus that prevents your seeing a real nice margin. At that stage some would put a wedge in. In putting a wedge in they would see a little of that squeeze out, and by putting more pressure on it they might get considerable out, but after you have gotten all out you can possibly get, if you take a piece of tape about one-sixteenth of an inch wide, and rub that over the filling, that is, from here to here (indicating on illustration), it does this: It keeps teetering that thing from one end to the other. Keep going over it, and you will be surprised how much closer the inlay will become seated than though you put on any amount of direct pressure.—*Dental Review.*

REPORT OF THE FINANCE COMMITTEE, FOURTH INTERNATIONAL DENTAL CONGRESS.*

Dr. M. F. Finley, treasurer of the Fourth International Dental Congress, presented the following report, which, on motion, was accepted and directed printed:

Mr. Chairman and Gentlemen—In submitting herewith the report of the Finance Committee of the Fourth International Dental Congress, we desire first of all to express our appreciation of the courtesy, consideration, and uniform confidence displayed toward us by your committee, and the widespread and universal trust in our integrity and purpose by the profession at large. This mutual trust and confidence left the committee with a free hand and enabled it to enter upon and prosecute its important work to a successful conclusion. On accepting appointment on this committee our first duty appeared to be to study the scope and financial need of the congress, and to formulate, as nearly as might be, an estimate of the probable expense attending its organization and work. Naturally, we turned first of all to the published proceedings of the Columbian Congress, thinking that the expense and results of that gathering would assist us materially in the work we had undertaken; but to our surprise and astonishment, no financial report of that congress could be found, and an appeal to the officers, charged with the duty of financing it, threw no light upon the subject whatsoever, so that we were compelled to devise and develop measures of raising money without any assistance from the experience of those preceding us in similar undertakings. The first work of your committee, therefore, and that as a basis upon which to found their efforts, was to formulate a careful estimate of the total expenses probably necessary to organize, conduct, and complete the work of such a congress; secondly, what percentage of the required amount could be derived from membership fees; and thirdly, from what sources the balance of the funds might be procured.

After giving to these questions such study as time and available experience would permit, it was estimated that from $28,000 to $30,000 would be necessary to complete the work along the lines already projected by your committee; and that from $15,000 to $18,000 of this amount could probably be derived from membership fees (see minutes of the Chicago meeting of your committee). But just here arose an unexpected and most perplexing problem, occasioned by the decision of your committee already announced, to present to each member the bound proceedings of the congress, for a fee of ten dollars, we having estimated that to report, edit, print, bind, and deliver the Transactions, would cost a sum equal to, if not in excess of, that fee, so that we were confronted at the start with the necessity for raising from $12,000 to $15,000 from sources other than that of membership fees. This, in the judgment of your committee, should be done if possible, without asking for personal subscriptions from individual members of the profession, as is usual with such gatherings.

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*Abstract Minutes National Dental Association Meeting, Atlanta, Sept. 18, 21, 1906.

Four avenues for raising this amount seemed open to us—namely, First, dental exhibits; second, dental societies; third, dental colleges; and, fourth, dental manufacturers and dealers. The first of these was certain to yield something, as it had been already decided to make dental exhibits a feature of the congress; the second seemed reasonably certain, as we felt sure that the whole profession was deeply interested, and through its organization would do what it could to make the congress a success. The third was somewhat problematic, as most, if not all, of our schools were experiencing difficulty in meeting their own necessary expenses; while the fourth was felt by many to be without any promise whatsoever. However, the needs were imperative, the objects worthy, and it was believed by your committee that upon a fair presentation of the matter the manufacturers and dealers would willingly come to our assistance, and it is with the greatest gratification that we are able to report that in this, as in all other matters pertaining to the finances of the congress, we were not disappointed, as will be shown by a detailed statement of receipts appended to this report.

In all the work of your committee there was nothing more gratifying than the encouragement and assistance which we received from the dental manufacturers and dealers, and we are glad to believe that, in their cordial response to our appeal, something of the unwarranted, though real, antagonism between them and the profession existing through so many years has been broken down; and if we are right in thus believing, this result, if it were the only one growing out of this most successful congress, would be worth its entire cost of money and effort. Two other experiences were also extremely gratifying to your committee, and we believe they will be also to the entire profession—namely, first, that every subscription to the Congress Expense Fund that was made unconditionally was paid promptly and in full; and second, that out of the hundreds of personal checks received from almost every city and town in the United States, not a single one was protested—a showing we believe not experienced in any other enterprise of like magnitude, and testifying to the high character and honest purpose of the individual members of the congress; and your committee feels that it would be derelict to its privilege and opportunity did it not in this public manner bear testimony to this expression of professional integrity.

The itemized statement of the receipts of the Congress from all sources is as follows:

DENTAL EXHIBITS.

1904.		
April 11.	Dr. Gallie, chairman committee	$1,000.00
May 28.	Dr. Gallie	850.00
Sept. 2.	Dr. Gallie, cash	258.00
Sept. 2.	Dr. Gallie, checks	2,707.49
Sept. 2.	Dr. Gallie, checks	176.31
Sept. 21.	Dr. Gallie, checks	181.90
Oct. 17.	Dr. Gallie, checks	39.72
Nov. 3.	Dr. Gallie (B. Holly Smith)	700.00
		$5,913.42

CONTRIBUTIONS FROM DENTAL SOCIETIES.

1903.		
Sept. 28.	National Dental Association	$500.00
Oct. 14.	Buffalo Dental Association	25.00
Oct. 28.	Fourth District Dental Society, N. Y	25.00
Nov. 14.	First District Dental Society, N. Y	250.00
Nov. 19.	Pennsylvania State Dental Society	250.00
Dec. 1.	Eighth District Dental Society, N. Y	100.00
1904.		
Jan. 27.	Syracuse Dental Society, N. Y	25.00
Feb. 9.	Chester and Delaware County Societies, Pa	10.00
Feb. 15.	Rhode Island State Dental Society	15.00
Feb. 15.	Colorado State Dental Association	50.00
Feb. 15.	Denver Dental Association	50.00
Feb. 29.	Maine Dental Society	25.00
Feb. 29.	Fraternal Dental Society, St. Louis	50.00
March 3.	Odontographics, Kansas City	50.00
March 9.	Reading Dental Society	15.00
March 18.	American Society of Orthodontists	50.00
March 22.	District Columbia Dental Society	100.00
March 28.	Virginia State Dental Association	25.00
April 11.	Institute Dental Pedagogics	200.00
April 11.	Maryland State Dental Society	50.00
April 18.	Detroit Dental Society	41.00
April 18.	Jean J. Lorzeaux, Boston	1.00
April 22.	New York Institute Stomatology	50.00
April 29.	Metropolitan District Dental Society, Mass	50.00
May 3.	New York Odontological Society	200.00
May 4.	Fifth District Dental Society, N. Y	50.00
May 4.	American Academy of Dental Science, Boston	50.00
May 6.	Valley District Dental Society, Mass	15.00
May 6.	S. E. District Dental Society, Mass	10.00
May 7.	Rochester Dental Society, N. Y	28.00
May 11.	Central District Dental Society, Mass	25.00
May 17.	Iowa State Dental Society	100.00
May 19.	Third District Dental Society, N. Y	50.00
May 20.	Harries Dental Society, Pa	10.00
May 21.	Sixth District Dental Society, N. Y	50.00
May 21.	Illinois State Dental Society	300.00
May 24.	Lake Erie Dental Society, Pa	50.00
May 25.	Eastern Dental Society	25.00
May 26.	Texas State Dental Society	200.00
May 31.	Kentucky State Dental Association	100 00
May 31.	Utah State Dental Association	22.00
June 3.	Susquehanna Dental Association	25.00
June 6.	Second District Dental Society	100 00
June 13.	Southern Wisconsin Dental Association	25.00

June	14.	Lebanon Valley Dental Association, Pa.	15.00
June	17.	Columbus Dental Society	20.00
June	17.	Cleveland Dental Society	50.00
June	20.	Alumni Association, N. Y. College of Dentistry	25.00
June	20.	Pennsylvania Association Dental Surgery	43.00
June	24.	Milwaukee Dental Society	10.00
June	28.	Lehigh Valley Dental Society	10.00
June	29.	Massachusetts Dental Society	50.00
July	1.	Dallas Dental Society	15.00
July	7.	North Carolina Dental Society	159.00
July	7.	Dental Society of the State of New York	400.00
July	8.	Luzerne and Lackawanna Dental Society, Pa	10.00
July	11.	Indiana State Dental Association	50.00
July	12.	Toledo Dental Society	25.00
July	12.	Academy of Stomatology, Philadelphia	69.00
		(June 7, 1905)	31.00
July	13.	Southern California Dental Association	12.50
July	13.	Los Angeles Association of Dental Alumni	12.50
July	13.	California State Dental Association	50.00
July	15.	Chicago Dental Society	100.00
July	16.	Harvard Odontological Society	10.00
July	18.	Jefferson County Dental Society, N. Y	10.00
July	19.	Psi Omega Fraternity, Pittsburg, Pa	150.00
July	19.	Lynn Dental Society, Mass	10.00
July	25.	Wisconsin State Dental Society	100.00
July	26.	New Hampshire Dental Society	25.00
July	29.	Georgia State Dental Society	100.00
July	29.	Lycoming County Dental Society, Pa.	10.00
Aug.	3.	Connecticut State Dental Association	200.00
Aug.	4.	Odontological Society, Cincinnati, O	25.00
Aug.	10.	Kansas State Dental Association	100.00
Aug.	11.	New Haven Dental Society	25.00
Aug.	15.	South Carolina State Dental Society	50.00
Aug.	15.	San Francisco Dental Association	20.00
Aug.	16.	Michigan State Dental Association	100.00
Aug.	17.	Ohio State Dental Society	100.00
Aug.	17.	Northern Ohio Dental Association	50.00
Aug.	18.	Seventh District Dental Society, N. Y	50.00
Aug.	22.	Tennessee State Dental Association	100.00
Aug.	23.	Southern Branch, N. D. A	150.00
Aug	26.	Mississippi State Dental Society	50.00
Aug.	29.	Southern Branch, N. D. A. (second)	150.00
Aug.	29.	Odontological Society, Chicago	200.00
Sept.	1.	New Jersey State Dental Association	200.00
Sept.	21.	Detroit Dental Society (second)	1.00
Sept.	27.	National Dental Association (second)	500.00

1905.		
Jan. 19.	Utah State Dental Society	6.00
March 20.	Northeastern Dental Association, Connecticut	100.00
	Total	$7,191.00

CONTRIBUTIONS FROM DENTAL COLLEGES.

1904.		
March 4.	Philadelphia Dental College	$ 50.00
March 23.	Kansas City Dental College	10.00
March 26.	Dental Department University of Buffalo	50.00
April 11.	Ohio College Dental Surgeons	40.00
April 11.	College of Dentistry, University of Southern California	20.00
April 27.	Indiana Dental College	25.00
May 12.	Dental Department, University of California	50.00
May 18.	Baltimore College of Dental Surgery	50.00
May 21.	New York Dental School	25.00
June 17.	New York College of Dentistry	50.00
July 5.	Harvard University, Dental Department	50.00
July 9.	Medico-Chirurgical College, Dental Department	100.00
July 13.	College Physicians and Surgeons, San Francisco	50.00
Nov. 11.	University, Michigan, Dental Department	20.00
Dec. 19.	University of Tennessee, Dental Department	25.00
	Total	$615.00

CONTRIBUTIONS FROM DENTAL DEALERS.

1904.		
Oct. 31.	The S. S. White Dental Mfg. Co.	$500.00
Jan. 9.	E. de Trey & Sons, Philadelphia	10.00
Jan. 13.	Kress & Owen Co., New York	20.00
Jan. 13.	John T. Nolde Mfg. Co., St. Louis	100.00
Jan. 16.	Dentists' Supply Co., New York	25.00
Jan. 20.	Mrs. W. M. Herriot & Son., Indianapolis	25.00
March 23.	McKesson & Robbins, New York	50.00
March 29.	Oakland Chemical Co.	50.00
April 2.	Friend	50.00
April 2.	Sanitol Co., St. Louis	50.00
April 18.	Dental Protective Supply Co	100.00
June 17.	Cogswell Dental Supply Co.	25.00
July 28.	W. V.-B., Ames, Chicago	25.00
July 28.	Lambert Pharamacal Co., N. Y	25.00
Aug. 1.	Noah Spears Co., Dallas, Tex	10.00
Aug. 1.	Lee S. Smith & Son, Pittsburg	50.00
Aug. 11.	J. W. Ivory, Philadelphia	50.00
Aug. 22.	Dutro & Hewitt Dental Depot	25.00

Aug. 22.	Johnson & Lund Dental Depot	25.00
Aug. 24.	Hance Bros. & White, Philadelphia	5.00
Aug. 29.	Consolidated Dental Mfg. Co., Cleveland	10.00
Sept. 7.	A. C. Clark & Co., Chicago	25.00
Sept. 8.	Dental Brief (L. D. Caulk, Philadelphia)	50.00
Oct. 13.	Buffalo Dental Mfg. Co	100.00
1906.		
March 9.	Hisey Dental Mfg. Co., St. Louis	25.00
		$1,430.00

Total contributions from all sources	$15,149.42
1587 members at $10.00 each	15,870.00
Making a grand total of	$31,019.42
Received for medals	110.00
Received for cases	9.00
Total receipts	$31,138.42

This, as your Treasurer's report will show, is ample to meet all the financial obligations of the congress in full, leaving a small balance in the treasury.

In conclusion, your committee owes it to itself to state that the total expense for raising this large sum of money, registering the membership, and the many expenses attending it, was about 0.04 per cent., an exhibition in financing dental congresses not previously realized, and only obtainable in this instance because of the fact that the great bulk of the clerical work was performed by the chairman and his secretary, without expense to the congress.

Respectfully submitted,

Charles S. Butler, *Chairman;*
Waldo E. Boardman,
Charles Mc Manus,
R. Hamill D. Swing,
R. M. Sanger,
Congress Finance Committee.

Medals. Medals sold at St. Louis, 14; sold at home, 27; total, 41—less medals refunded, 19, leaving 22 medals at $5 each, $110. Cases—6 cases at $1.50 each, $9. Total, $119.

Cash to Dr. Finley, $30.58; balance, $88.42. Total, $119.

REPORT OF TREASURER.

To September 17, 1906.

RECEIPTS.

Dr. C. S. Butler, Chairman Finance Committee	$31,138.42
Dr. Arthur S. Black, refund; section expenses	3.00
Bank interest	407.47
	$31,548.89

EXPENDITURES.

Committee of Organization	$ 8,712.25
State Chairmen	1,336.37
Sections, clinics, and St. Louis Exposition	2,814.33
Finance Committee	1,701.95
Secretary's office	2,920.20
Bailey, Banks & Biddle, prize medals	250.00
S. S. White Co., Transactions	11,799.91
National Dental Association, refund	500.00
Southern Branch, N. D. A., refund	300.00
California earthquake sufferers	750.00
	$31,085.01

Total receipts	$31,548.89
Total expenditures	31,085.01
Balance	$ 463.88

Respectfully submitted,

M. F. Finley,
Treasurer Fourth Congress.

Atlanta, Ga., Sept. 17, 1906.

To the Organization Committee of the Fourth International Dental Congress:

Gentlemen—The undersigned committee, appointed by the president of the National Dental Association to audit the finance accounts of the Fourth International Dental Congress would report that they have carefully gone over the books, vouchers, receipts, and checks of the treasurer and of the chairman of the Finance Committee, and have found them correct in every particular.

S. H. Guilford,
J. P. Gray,
V. H. Jackson,
Auditing Committee.

The following resolution regarding Dr. Donnally was presented, and on motion was recommended to the main body for acceptance.

Atlanta, Ga., September 20, 1906.

To the Executive Council, N. D. A.:

Gentlemen—In the judgment of your Executive Committee, the work of Dr. Wms. Donnally, as chief promoter of all bills relating to dental corps in both departments of the service, has been conducted with an unselfish desire for the best interests of dentistry and for the well-being of those at present in the army corps.

Respectfully submitted,

J. D. Patterson, *Chairman.*
C. S. Butler, *Secretary.*

Dr. J. Y. Crawford presented the following resolutions:

Resolved, That the sum of $200 be appropriated to reimburse Dr. Donnally for whatever money he may have expended in Washington in the interests of dental legislation in reference to the army and navy of the United States; and

Resolved, That a vote of thanks be extended to Dr. Donnally and the other members of his committee for their untiring efforts; and

Resolved, That the Legislative Committee when appointed shall consist of five members; and

Resolved, That all matters of army and navy legislation shall be under the direction of the Executive Council.

On motion the resolutions were recommended to the main body for adoption.

On motion the usual salaries of the Treasurer and the Recording Secretary were ordered paid.

On motion the council adjourned.

W. H. Peck,
Recording Secretary.

EXCHANGE OF PRACTICAL IDEAS

We are starting this new department for the further benefit of our readers, believing it can be made of great interest and value to every dentist.

But remember, being an "Exchange of Practical Ideas," it depends upon our readers furnishing material to keep it going. Just a few practical ideas from each subscriber will make it of mutual benefit and practical worth. Are you willing to do your share? Help the good cause along by sending the editor, Dental Summary, a few practical suggestions for the new department. We want to begin it in the next issue.

Send something today.

SOCIETY

NORTHERN OHIO DENTAL ASSOCIATION.

Next annual meeting will be held in Cleveland, the first week in June.

WEST VIRGINIA STATE BOARD OF DENTAL EXAMINERS.

The West Virginia State Board of Dental Examiners will hold their next meeting for the examination of candidates at Wheeling, W. Va., June 12, 13 and 14, 1907. For further information address

H. M. Van Voorhis, Sec'y,
Morgantown, W. Va.

ILLINOIS STATE DENTAL SOCIETY.

The forty-third annual meeting of the Illinois State Dental Society will be held at Quincy on Tuesday, Wednesday, Thursday and Friday, May 14, 15, 16 and 17, 1907.

ARTHUR D. BLACK, Sec'y,
31 Washington St. Chicago.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Indiana State Board of Dental Examiners will be held in the capitol at Indianapolis, June 11, 12 and 13, 1907. All applicants for examination to practice in the state should apply to the secretary for further information, blanks, etc. Applications for examination must be in the hands of the secretary at least five days before the above date.

F. R. HENSHAW, Sec'y,
Middletown, Indiana.

EASTERN INDIANA DENTAL ASSOCIATION.

The Eastern Indiana Dental Association meets in Anderson, May 14th and 15th. Good clinics. Good papers. Everybody invited. Everybody who comes is a member.

MISSISSIPPI DENTAL ASSOCIATION.

The fourteenth annual meeting of the Mississippi Dental Association will meet in the county court house in Meridian, May 21, 22, 23. All ethical practitioners of this and other states are cordially invited to attend.

Reduced railroad rates and reduced hotel accommodations will be secured.

E. DOUGLAS HOOD, Sec'y.
Tupelo, Miss.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of the National Association of Dental Faculties will be held in Minneapolis, Minn., commencing at 2 p. m., Friday, July 26.

The executive committee will meet at 10 a. m. the same day. The West Hotel has been selected as headquartrs and place of meeting. Hotel rates as published in the notices of meeting of National Examiners will prevail.

H. B. TILESTON,
Chairman Executive Committee.

B. HOLLY SMITH,
Sec'y Executive Committee,
1007 Madison Ave.,
Baltimore, Md.

FIRST FRENCH CONGRESS OF STOMATOLOGY.

A congress on stomatology, styled the First French Congress of Stomatology, will take place in Paris from 1st to 5th of August, 1907.

The congress will be open to all French and foreign doctors of medicine who are interested in dental and oral science.

The committee of organization is as follows:

Honorary presidents—Drs. Galippe and Redier, at Lille.
President—Dr. Cruet.
Vice-presidents—Drs. Claude Martin, of Lyons, and Ferrier.
General secretary—Dr. Chompret.
Treasurer—Dr. Cyres.

Subscriptions and communications should be addressed to the general secretary, DR. CHOMPRET,
182 Rue de Rivoli, Paris.

ALUMNI CLINIC OF THE ST. LOUIS DENTAL COLLEGE.

The Alumni Association of the St. Louis Dental College (formerly Marion-Sims) wish to announce that their annual clinic will be held at the college building, Grand avenue and Caroline street, on Tuesday and Wednesday, May 7 and 8, 1907.

All ethical members of the profession are cordially invited to come and enjoy the festival of good things being prepared, and every member of the Alumni is especially requested to show his allegiance to the association by his presence.

JOHN BERNARD O'BRIEN,
W. L. O'NEILL,
Committee on Publicity.

ANNOUNCEMENT OF N. D. A. CLINIC.

The work of arranging the clinical operations, table clinics, etc., for the coming N. D. A. meeting is progressing. I had hopes that I might at this time publish the names of the district and state chairmen, but that is impossible. The fearful floods and the great amount of snow which has fallen have prevented the usual mail facilities. It must be this, for the letters sent December 20, 1906, in many cases, still remain unanswered.

Plans have been made which, if followed, should result in bringing to the meeting men from all the states in the Union and Canada.

As soon as possible, each state will be provided with a local chairman, who will make every effort to obtain such an array of talent that the clinic of the National Dental Association, which is to be held at Minneapolis on July 31st and August 1st, will be the best ever arranged for the consideration of the members.

The work of the clinic has been divided.

Dr. W. N. Murray, Medical Block, Minneapolis, has been appointed chairman of the inlay section. Dr. Murray is arranging special features for his department.

Dr. W. R. Clack, of Clear Lake, Iowa, the secretary of the clinic section, has the territory west of the Mississippi river entirely under his jurisdiction.

I have the rest of the United States and eastern Canada under my care.

The executive council has invited the members and friends of the Black Club to operate on one of the days of the clinic. The invitation will be extended to them, and, beyond a doubt, it will be accepted.

The fact that I have been chosen chairman of the clinic section does not mean that the clinic is to be a Black Club clinic. It simply means this, that I hereby extend a most cordial invitation to all reputable dentists in the United States and Canada to come, meet with us, and if you have anything new to introduce in methods of filling teeth or some new appliance you wish to demonstrate at a table clinic, come to us and be welcome.

Every chance will be given all to assist in making this a most memorable clinic. (I am not in position to invite to the clinic those who have patented instruments or methods to sell; their place is the exhibit room).

I would like every man who has anything which he feels is of value to others to know that if he will come and demonstrate it, there is room on the program and at the meeting for him.

I am depending upon the district and state chairmen to assist me. One man may do much, but many men who are willing to work and do work are able to do much more. I am bending every energy to make this clinic the best which the National has ever held. More no man is able to do.

The dental journals for July will contain the clinical program.

Those who wish their names to appear as operators or table clinicians must have them in my hands by June 1st.

On July 1st the N. D. A. program goes to the printer.

E. K. WEDELSTAEDT,
Chairman Clinic Section,
N. Y. Life Building,
St. Paul, Minn.

JAMESTOWN DENTAL CONVENTION.

Norfolk, Virginia, Sept. 10-12, 1907.

This promises to be one of the best dental meetings ever held, and, it is to be hoped, one of the largest attended.

It will be unique in the following respects: There are to be no sections, and only six papers are to be read by leading men on important scientific and practical subjects. Three of the essayists will be Prof. Miller of Berlin, Prof. Black of Chicago, and Dr. Van Woert of Brooklyn. These papers will be read before the convention as a body. The rest of the time will be devoted to clinics, which are to be the main feature of the meeting. Other features are to be, a large dental manufacturers' exhibit, a U. S. army and navy dental exhibit, a historical exhibit, an orthodontia exhibit, a comparative anatomy exhibit, which is said to be the finest lot of specimens ever collected.

The exposition itself is to be unique, the only one ever held in America on deep water. It is to be both educational and historical: a naval display at which the naval armaments of all the world will be present; yacht races and aquatic sports will also be a prominent feature, as well as surf bathing, fishing and the other usual attractions at a great national show, details of which will be seen in the printed matter enclosed.

It is very desirous that our states send a large delegation to the convention, both as members and clinicians. Greatly reduced railroad and hotel rates will be secured. Full particulars regarding this, the program, and other details of the convention will appear from time to time in The Dental Summary.

The fee for membership is to be $5.00. This includes the privileges of the convention and a bound copy of the proceedings, which will be a valuable addition to your library.

All ethical dentists are cordially invited to become members of this convention and receive all its benefits.

Make application to the chairman of membership committee in your state and cross the date off your appointment book. Chairmen of membership committees so far appointed are:

Dr. C. S. Gunn, Gadsden, Ala.; Dr. T. M. Milam, Little Rock, Ark.; Dr. J. Loranz Pease, Oakland, Cal.; Dr. F. T. Murless, Jr., Windsor Locks, Conn.; Dr. Henry F. Hoffman, 612 California Bldg., Denver, Colo.; Dr. Wm. N. Cogan, Washington, D. C.; Dr. Walter C. Miller, Augusta, Ga.; Dr. J. H. Lewis, Nez Perce, Idaho; Dr. Fred. R. Henshaw, Middletown, Ind.; Dr. F. T. Breene, Iowa City, Iowa; Dr. W. G. Foster, No. 9 W. Franklin St., Baltimore, Md.; Dr. T. M. Hampton, Helena, Mont.; Dr. Alphonse Irwin, Camden, N. J.; Dr. C. A. Bland, Charlotte, N. C.; Dr. L. P. Bethel, Columbus, O.; Dr. Howard E Roberts, 1517 Locust street, Philadelphia, Pa.; Dr L. P. Dotterer, Charleston, S. C.; Dr. Justin D. Towner, Memphis, Tenn.; Dr. Rufus W. Carroll, Beaumont, Tex.; Dr. W. G. Dalrymple, Ogden, Utah; Dr. K. L. Cleaves, Montpelier, Vt.; Dr. Wm. Pilcher, Petersburg, Va.; Dr. J. M. Staples, Atoka, Indian Territory; Dr. Frank I. Shaw, Burke Block, Seattle, Wash; Dr. W. E. Boardman, Boston, Mass.; Dr. D. O. M. Le Cron, Missouri Trust Bldg., St. Louis, Mo.; Dr. A. E. Tillman, Vicksburg, Miss.; Dr. C. H. Bartlett, Parkersburg, W. Va.; Dr. F. E. Buck, Jacksonville, Fla.; Dr. S. H. Johns, Wilmington, Del.; Dr. F. O. Hettrick, Ottawa, Kan.; Dr. C. Victor Vignes, Macheca Bldg., New Orleans, La.; Dr. Jas. M. Weirrick, 138 E. 6th street, St. Paul, Minn.; Dr. H. P. Baldwin, Manchester, N. H.; Dr. H. Clay Ferris, 1166 Dean street, Brooklyn, N. Y.; Dr. E. H. Bruening, Omaha, Neb.; Dr. G. W. Collins, Vermillion, S. D.

AFTERMATH

Married.—Dr. J. A. Laughry, Upland, Ind., was recently married to Miss Edythe Johnson, of Urbana, Ind.

Unlicensed Dentist Is Fined.—John Kestowski, Chicago, Ill., was found guilty of practicing dentistry without a license and was fined $75 and costs.

Dental College Suffers Loss by Fire.—The Ohio Dental College, Cincinnati, O., at Court street and Central avenue, was damaged $1,500 by fire, February 11.

Dr. Harlan Changes Location.—Dr. A. W. Harlan, New York City, has changed location of his office from 1122 Broadway to 373 Fifth avenue, New York City.

Fire in Dental Office.—The office of Dr. Barber at Deshler, O., was destroyed by fire February 19, entailing a loss of $700, which was fully covered by insurance.

Dies Under Chloroform.—Mrs. Luther Taylor, of Pleasant Plains, expired in a dentist's chair in Springfield, Ill., February 13, while under the influence of chloroform.

Vulcanizer Explodes.—Dr. F. J. Thompson, of Trenton, Mich., received several painful burns about his head and arms as the result of a vulcanizer explosion in his laboratory, February 22,

Dr. Gorman Settles in Philadelphia.—Dr. J. A. Gorman, formerly of Asheville, N. C., announces to the profession that he is now located at 1623 Walnut street, Philadelphia, Pa., for the practice of orthodontia exclusively.

Massachusetts Examining Board Reports.—In the twentieth annual report of the Massachusetts Board of Registration in Dentistry, which is mostly devoted to statistics, it is stated that the whole number examined for the year 1906 for registration in dentistry was 228; those passed for the year numbered 131; and those rejected for the same time were 97. Of those not attending a dental college, six passed and 27 were rejected.

Died Under Anesthetic.—Mrs. Julia Devendorf, of Ballard, Wash., died in a dental chair at Grand Rapids, Mich., February 22, while under the influence of somnoform. Six teeth were extracted.

Stricken with Paralysis.—Dr. R. A. Marr, of Michigan City, formerly of Dowagiac, Mich., who was stricken with paralysis a few weeks ago, has partially recovered the use of his arm and leg. Close application to his dental practice brought on the attack.

Nothing to Retract.—"Oo! Ouch! That hurts! I thought you were a painless dentist!" "So I am, madam. I'm the only painless dentist in the office. All I do is to make the artificial teeth. The man that does the extracting hasn't come in yet, but you insisted on having it done right away."

Jamestown Dental Convention (Norfolk, Va.).—The following officers were elected: Dr. V. E. Turner, of Raleigh, N. C., president; Dr. B. Holly Smith, of Baltimore, vice-president; Dr. J. Y. Crawford, of Nashville, Tenn., honorary vice-president; Dr. George Keese, of Richmond, Va., secretary-general, and Dr. M. F. Finley, of Washington, D. C., treasurer.

Dentist Takes His Life.—Dr. M. Broderick, who ended his life at his home in Huntsville, Tex., February 12, by shooting himself with a pistol, was a man about 50 years of age, and for many years had been a prominent dentist in this and adjoining counties. A few months ago his health failed and later he lost his eyesight, which compelled him to forsake his practice.

Deaths.—Dr. I. W. Stiles, New Haven, Conn., February 9, of heart disease, aged 64 years. Dr. James Goodwillie, New York City, March 2, of pneumonia, aged 71 years. Dr. G. A. Sweetnam, Chicago, Ill., February 17, of heart disease, aged 30 years. Dr. Kenyon B. David, Springfield, Ill., March 1, of a complication of diseases, aged 71 years. Dr. W. D. Bevier, Milwaukee, Wis., February 6, of heart disease, aged 70 years.

A Sham.—The dentist rubbed his hands and assured his new patient that his work could not be surpassed. "What do you think of that crown I gave you some weeks ago?" said the dentist, glibly. "Don't you agree it was the king of crowns?" "No," replied the patient with grim humor, "I should call that the czar of Russia crown." "And why, my dear man?" Because I am afraid I will lose it at any moment."

Has a Corner on Teeth.—John D. Losekamp, of Montana, or Elktooth John, as he is sometimes called, has for 25 years been buying the molars of elks, until a short time ago he was the possessor of 80,000 elks' teeth. He is the "elk tooth" king of Montana, if not of the entire west. Losekamp formerly bought dresses from the Indians, the dresses being decorated sometimes with 500 teeth. Any hunter with elk teeth in his possession was sure of a purchaser in Losekamp. But he cannot buy them any more and make a reasonable profit, for any Crow Indian nowadays knows the value of an elk tooth. Losekamp is disposing of his teeth to a firm in the east at the rate of 400 to 500 a month. The firm takes them for watch fobs for members of the Society of Elks.

Robberies.—Dr. A. V. Davis, of Newark, O., lost $300 in teeth, gold, platinum and bridge-work, February 16; Dr. M. A. Becker, Lancaster, $150 worth of gold; Dr. J. F. Stevens, Lancaster, instruments and supplies, February 28; Drs. Mayfield, Land, Edgar, Black and Grandy, Pine Bluff, Ark., were robbed each losing from $50 to $75 worth of gold. Dr. W. L. Buchnan, of Washington, D. C., lost over $100 in instruments. Drs. D. D. Griffin and W. W. Westmoreland, Columbus, Miss., lost $75 and $125 respectively, March 3. At Bessemer, Ala., February 5, Dr. E. W. McNeill's loss was $50; Dr. E. T. Brown's, $60, and Dr. Fitzpatrick's, $100, all gold. Dr. C. A. Hickman, Fort Worth, Tex., $25 worth of gold, February 12; Dr. J. A. Rockey, Alliance, O., robbed of $50 worth of gold and $5 in money, March 1.

Report of New Jersey Dental Examining Board.—The seventeenth annual report of the State Board of Registration and Examination in Dentistry for the year 1906 has just been made to the governor. Among other things it says: "With the year just closed, the state can be congratulated that, with but few exceptions, the dental laws have been stringently enforced and evasions of the statute few. The general public has been more thoroughly protected from the incompetent men. The only case of what the report calls illegal practice on the court calendar at present is the case of the State vs. Terry, on appeal from decision of the lower courts. Continuing, the report says: "Since the passage of the law of 1890, the board has examined and passed 1,013 graduates, and according to the last registry list of 1905, there were 715 dentists practicing in the state. In twenty counties of the state there is a dentist appointed whose duties are to make reports to the board of infractions of the law, and during the year passed hardly any reports of illegal practice have been made. There are six local dental societies throughout the state, the members all striving to increase their knowledge, and actuated by the best of motives in elevating the standing of their profession and the membership. In proportion to the population, New Jersey stands at the head of the list of states in society membership. The members and officers of the State Board of Registration and Examination in Dentistry are: Dr. B. F. Luckey, president, Paterson; Dr. Alphonso Irwin, Camden; Dr. Charles A. Meeker, secretary and treasurer, Newark; Dr. H. S. Sutphen, Newark; Dr. W. E. Truex, Freehold.

Died in Dental Chair.—Mrs. J. F. Swingle died in an operating chair in Dr. J. E. Taylor's dental office, Manhattan, Kan., while an anesthetic was being administered by her physician, preparatory to the extraction of a number of teeth, February 11. While deeply deploring the incident, Dr. Taylor realizes that he is in no way responsible for its occurrence, as his work had not commenced. The physician had used every precaution, examination of heart, no diseased condition existing, imposing usual restrictions as to previous eating, and all details carefully arranged. Dr. Moffit used an open-wire administering cone, permitting the free circulation of air. He had used ten drops of chloroform at a time at intervals, and had not used to exceed sixty drops, a decidedly small quantity. The patient took the chloroform nicely and was breathing naturally. The administering of the anesthetic had barely commenced—it was just commencing to effect the muscles—when the patient suddenly threw back her head and expired. Dr. Moffit immediately used a stimulant he had in readiness and applied restoratives without effect. Dr. Cave came to his assistance, artificial respiration was tried, and every effort made to revive animation, but with no avail. It was Mrs. Swingle's wish that she be given chloroform, although in talking the matter over with the dentist it was suggested that applications of a local anesthetic would be sufficient to deaden the pain.

Religion and Artificial Teeth.—[The British Medical Journal lately quoted the following item of news from India, and in commenting upon it, as we also quote, according to a correspondent, must have fallen into the dangerous "flippant" vein of which we have been accused. — Ed. B. D. J.]: "Mooneer Khan, dentist, Madar Gate, near Jubilee Tower, Ajmer, has circulated the following remarkable advertisement: " 'I make the most reliable English teeth, very fancy and strong, that can ever be had in the market. The teeth made by me can be safely used by every religion. They are affixed by an easy way with a fine spring. I possess many certificates in behalf of the art. Terms very moderate, from Rs 1 to Rs 10 each. Old teeth repaired at moderate cost. A trial solicited.' "Undenominational, or Cowper-Temple, teeth present a novel conception, reminding one of the clerical tailor who assured the curate as regards the length of coat he was fitting on, 'This, sir, is a coat in which you may hold any doctrine.' Mooneer Khan's teeth are warranted to masticate without prejudice any food their fortunate possessor may conscientiously chew or eschew. The advertisement has translations in Urdu and Nagri adapted to the comprehension of the native trader. Subsequently, Dr. M. J. Longinotto (London, W.) wrote: 'With reference to "A Famous Dentist in Ajmer," published in the British Medical Journal of September 29, p. 816, will you allow one who has been much abroad to say a few words? The dentist advertised: "The teeth made by me can be safely used by every religion." From this you infer that the teeth are "warranted to masticate without prejudice any food, etc." Let me point out that the inference is wrong. According to the religion of the Prophet of Arabia (Mahomet), no true and faithful follower of his dare touch anything made of the bone, flesh, or fur of a pig, and that is why English-made toothbrushes, warranted "best bristle," find no market in Mohammedan countries. Now, when we know 60 millions represent the Mohammedan population of India, we can easily understand that the Indian dentist was a man of business when he wanted to make clear that the teeth he had for sale were not made of pig's bones. The same thing applies to the followers of Brahma, chronologically the first prophet in the world, whose followers dare not touch bones, flesh, or fur of the cow, bullock, or heifer; therefore the dentist wanted to assure the 210 millions of Hindus in India that the teeth were not made of bone of kine. Of course, in the west we know teeth are made of porcelain, etc., but in the east ivory, metals, rhinoceros tusks, bone etc., are used in making artificial teeth, and as some animals are held sacred and others unholy, the dentist was anxious to turn human prejudice to advantage. Dentistry was known in India quite a thousand years before the Christian era; for instance, in 327 B. C. Alexander the Great recognized the dead body of his enemy, Maharaja Prithviraj, on the battlefield of Hastinapur, by means of three false teeth made of solid gold. We know that the population of the British empire is 400 millions, of which India alone represents 300 millions, and unless we understand the prejudices of the three-quarters of the British empire, our trade is not likely to spread in the east. The Germans have a bureau to study this matter, and that is why their eastern trade is going up by leaps and bounds. It was caste prejudices that caused the great Indian mutiny in 1857. The Bengal army, with magnificent traditions to its credit, suddenly, on May 10, attacked and killed all white men at Meerut, because they thought that the cartridges which were supplied to them, and which they had to open by their teeth, were greased with pig's and cow's fat. This will emphasize the importance of paying attention to the prejudice of the oriental.' "—British Dental Journal.

REGULAR CONTRIBUTIONS

HELPFULNESS OF SOCIETIES.*

BY H. L. AMBLER, D. D. S., M. D., CLEVELAND, OHIO.

This subject is always old and always new. It is always old because the foundation of dentistry rests on science and art, and the actual necessities of the human race. It is always new because we often find some new process which aids us in our daily practice —some one finds a sequel to what was only suggested in our early history, and we have been searching for it ever since. All of you can recall instances which bear out this statement, and we are on the eve of other sequels which will surprise and gladden you. Geologists say that this continent contains the oldest ridge of land which looked up through hissing waters to clouded sky, when the earth rose above the sea, and to it was given the opportunity of forming the first dental society of modern times—we say modern times, because it is a fair supposition that societies existed in Egyptian times; history tells us that in those ancient days (thousands of years ago) there were physicians for the teeth, and they naturally would do as we do now, meet together.

One of the greatest losses the world has ever met with was the destruction of the two Alexandrian libraries; if it had not been for these calamities the literature of dentistry would be richer and more abundant, and no doubt we should have the details about dental societies.

The American Society of Dental Surgeons was organized in New York City in 1840, and we, its children, are following in the footsteps of our illustrious predecessor. New York City has been called the cradle of American dentistry, largely because here originated the first society, and first dental journal (1839), and in Baltimore the child—the Dental College—was born in 1840, so Dr. Chapin A. Harris says, and he ought to know, for he assisted at the birth; many years ago this child became of age, declared himself free and possessed of sufficient brains to exercise the power of franchise; ever since, in no uncertain voice, he has been speaking for himself so that he has been heard around the world.

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*President's Address at Ohio State Dental Society, December, 1906.

To this old hemisphere belongs the credit of publishing the American Journal of Dental Science (1839), the first dental journal which at its fourth issue only had one hundred and seventy-four subscribers; truly, dentistry has made progress, and to push it along to greater achievements let us exert ourselves to increase our society membership. So long as we are in practice, we should never become so conceited as to think that we can get along just as well without the society. No one in dentistry, any more than in any other science, knows just how capable he is until he knows what the bright ones about him are doing, and we believe there is no other way as good and sure to find out as to attend societies.

Listening to the reading of a good paper acts as an inspiration, while seeing a good clinic inspires one to copy or improve on it; for example, a young man was watching an operation, and after it was completed he said: "Maybe I cannot duplicate it, but I will tell my brother, who is older, and more experienced, and I am sure he can."

Societies offer a post-graduate course to all who join. Physicians and surgeons who are ambitious for knowledge go to our great cities, and even abroad, to avail themselves of special opportunities in post-graduate work, thus spending much time and money; while right here at home any ethical dentist can have all the opportunities he wants for post-graduate work, because good societies are numbered by the hundred, and if he attends he will gain enough knowledge to more than compensate him for his effort.

Our patients are entitled to the best we can give them from the combined experience of many minds, and the quickest and easiest way to climb the ladder of progress is through the society, where something new and useful is to be seen, or heard about. A man must not live for himself alone, but for the good of his chosen profession; this is ingrain in the true professional man, and a duty which he ought to inherit from his forbears. Let it be said that no right-minded dentist is so egotistical as to care neither for his brother nor the society. It should be an unselfish interest which prompts the betterment of our professional brethren. Much of our individual growth and reputation has been brought about by belonging to societies. Much of the enlargement and extension of the profession has been brought about by the interchange of valuable ideas. We know of many who have been active society members, and some of them have built up a good reputation and made a deep impress upon dental literature or technic, through their activity as society members. This is so plain a fact to those only a few years in the profession we wonder that so many hold aloof from our meetings. As an example of the faithful, loyal attendant we will mention our own Dr. J. Taft, who, during fifty years gave about one-twelfth of his time and labor to society work, and he was always ready to accept any position conferred upon him. Who ever heard him try to get excused from society work of any kind? Who could want a more honorable reputation than he had? We hold him up as a shining example in this respect, and everybody knows that his influence was great for progress. The leaders are to be found in societies where they are at work, and work is in itself respectable unless it is proved to be wrong. .The grumblers are to be found in their offices at rest, and rest is in itself suspicious unless it prove itself to be right. The grumblers say that societies, journals, colleges and laws are all wrong, and never were right, so they "wash their hands" of them all. There is power in co-operation as it is felt in the world of business, and in the professional world co-operation can make its power felt in the elevation, progression and benefits bestowed; consulting over cases, interchange of new ideas, presentation of new appliances and methods to simplify difficult operations and make new ones possible; thus both patient and operator are benefited. The opportunities for honorable professional methods are more possible now than ever before, and this has largely come about through the contact of man with man in societies, thus rounding them up to a polished surface and substantial growth. There may be a society without a profession, but there can be no profession without a society. Dental societies in this country and abroad have increased in number, and no one can doubt that they have been a most potent factor in the uplifting and upbuilding of the profession. Some think when they join a society that they have done all of their duty, and we believe that the majority do not stop to think about the management, or whether it is doing the best possible thing for the generations to come. Could it be so that each one at sometime would be placed as chairman of one of the more important committees, he would find out that there was some thinking to be done, and thinking is hard work; now if everyone will do a share of the brain and hand work, then quicker and easier will be the progress. Some join a society because it has something to offer them which they want, but they have not even thought of offering the society anything; now it is high time that this class should have their attention attracted to this statement, which we trust may lead them to try and do something for some society to which they belong. Indifference has broken hearts and killed nations, and even if we are prosperous now, unless the prosperity is kept moving by thinking and working men, it will lapse into decline. The indifferent say they cannot spare time to attend; they are self-sufficient; they have fallen in love with themselves; they generally have few dental books; they generally take few, if any, journals; they generally have some contention with other dentists; they generally tell you that "so and so" belongs to "such and such" a society, and that is enough for them; they do not care to join because they know he is a "bad man". It is on the same plan that some excuse themselves from joining a church. If we cannot keep up with the leaders of the dental times, we should surely keep in sight of them with our minds in a receptive condition. A few of the advantages offered by societies:

Growth.
Good-fellowship.
Grand ideas.
Go away from your office.
Go back encouraged.
Go to work and do better.

The time is at hand when we owe it to ourselves, our families, our brother practitioners and our patrons, to learn of all the new and good treatments and operations.

It is knowledge and skill which the world needs, and for which it is willing to compensate, and a large portion of the former can be gained at the society, and the latter can be developed in the office. Societies and colleges are the center of education, and that means leadership and government; they change the order of dental things, introduce new ideas and push them out into the world; they eradicate the obsolete and put something better in its place; as the years go by they develop confidence and strength; they have been, and will be, on account of the "survival of the fittest," at the forefront in theory and work.

This is the golden age of societies, and many young men having been born in it and found so many societies at hand, do not fully realize what a grand opportunity they have to become learned and skillful men, as compared to the pioneers of several decades ago; anyone will more fully appreciate the present condition of dentistry if they will study the history of those times. Men of ambition, of creative and inventive power, of strong will force, know what it means to work, and when they achieve more or less fame they appreciate it; but there is no great success for a man if he live in himself, by himself, and for himself. "All the people know more than any one of the people," and on the very same line a dental society knows more than any one dentist.

"The human race is the individual of which men and women are only the cells or organs." The dental profession is the individual of which societies, journals, and colleges are the cells or organs, constituting the great union of all, for all. Dental societies opened an important page in the history of the profession, and laid the foundation of the empire of dentistry so broad, wisely and deep that "time and tide" can never efface it; then let us highly resolve before we leave this hall that we will see to it that this society shall stand as a monument of energy in all the years to come.

DISCUSSION.

Dr. C. R. Butler, Cleveland: I do not know that Cleveland should be held responsible for carrying on the great work of this society. It has more than once been hinted that Cleveland has in the past monopolized more than her share, that she has pretty much run this society. If that be true, it is all because she has considered its work a worthy work, and it has been a joy to the Cleveland members to do all in their power to help in the work. There will be enough for all to do, not only the Cleveland members, but all other members of this society, if we heed the suggestions and admonitions of this excellent paper.

Dr. M. H. Fletcher, Cincinnati: The idea which impressed me most was set forth in that part of the president's address indicating that we are not alone in possessing any single branch of knowledge. It is not given to any one man to know all, or anywhere near all, of any branch of science. Yet all that any man knows falls far short of what all need to know.

Dr. H. A. Smith, Cincinnati: I have listened with pleasure to the paper. Dr. Ambler has given us a very able and a very eloquent presentation of the subject. As I sat here listening my mind reverted to the day when I first joined a dental society. It was the day following my graduation, and the society was the old Mississippi Valley Association. Until it died I remained constantly a member. I have been a member of various other societies, and have been greatly benefited by association with their membership. I have frequently said that if the advantages of society associations had been omitted from the privileges which, as a dentist, I have so long enjoyed, not much would have been left for me. Lord Bacon said, "Every man is a debtor to his profession." I know that I have been profited, more than can be estimated, by association with the members of the dental profession, enjoying not only the social features of such association, but gaining thereby an introduction to all that is best in the literature and the traditions of the profession.

Dentistry as a profession is young, not yet seventy years of age. Three factors have contributed to its elevation; dental literature, dental colleges, dental associations. Without these three agencies dentistry would be today merely a crude art. We cannot afford to omit any one of them. They have been the great fundamental influences which have developed our profession to its present proportions. As to the dental society, this Ohio State Society, the surprising fact is, that so comparatively few of the dentists avail themselves of its proffered benefits. Of the four hundred dentists of my own city, there are probably not more than fifty in this society. Of the large number of dentists in the entire state, a small proportion only attend. I cannot understand why this is so. Seeing my old friend, Dr. Beauman, here, reminds me that he and I are the only surviving ones of the first membership of this society. I feel a thrill of pride that he still comes to aid the younger members of the society.

Dr. Henry Barnes, Cleveland: The feature that struck me in the address was the hint of indifference on the part of so many dentists. I myself have been a member of this society for many years, and have had some part in the clinics, and in committee work. I once appealed to a friend to get him to attend the society. He replied, "It takes all my time to make a living; let those who can, run the societies." Many dentists are so constituted that they can see no advantage in what does not directly appeal to the practical side of dentistry.

A BANDLESS RICHMOND CROWN.*

BY J. C. LONGFELLOW, D. D. S., BELLEFONTAINE, OHIO.

There are a great many ways of constructing porcelain-faced crowns, but in the normal or average occlusion the bandless Richmond, as we shall try to describe, will be found to be very satisfactory.

Right here we might say that, by the use of porcelain in our crown work, nature has been nearer approached than by any other means.

In the construction of this crown the tooth is prepared as for a Richmond crown. Cut a piece of pure gold about forty-gauge or heavier, what you think will cover the root with a margin all the way around, and leave a good length at lingual part. Burnish this piece over the root slightly and remove and cut hole a little smaller than for the pin to pass through, replace your gold after selecting a suitable pin and run the pin through the gold into root as far as is necessary.

Remove the gold with pin and solder with 20-k. solder, replace the pin and gold which is now in one piece, being sure to leave the pin extending out of root and gold, so when the impression is taken the pin will have something to hold to. After replacing the pin and gold, hold the pin firmly in the root, and with a flat or suitable instrument burnish the gold well on root until you can see the root margins on the gold.

Remove and trim to where root margin is marked on gold except at lingual part, that is allowed to extend longer than the other part.

Now remove, and with the shears slit this long piece on lingual side into where you see the root margin marked on the gold at this part, replace and burnish or turn this back well against the lingual portion of root, letting it extend into the free margin of gum against the root. Having fitted this well against the root, we are ready to take the bite and impression. The pin and cap should readily come off with your impression. Make your cast with some investing compound and mount on articulator, select a suitable facing, and grind it to the root margin or where it shows in the gold on labial side, leaving the sides of facing extending a little beyond the margins at sides of root.

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*Description of clinic given at Ohio State Dental Society, 1906.

Before grinding in your facing, the part of the pin that is extending out can be cut or ground off. After your facing has been ground in as you want it, you are ready to wax it to invest. In waxing be sure to wax out to end of gold where it extends up on the lingual portion of root. You invest and solder as usual with 18k. solder, letting it run well upon this lingual part. Having it soldered you can now see just where to trim and polish to, the root margin showing on the gold very plainly.

When this is mounted, it is sure to fit accurately to the root it is made over, and you have practically as strong a crown as a Richmond, and no ill-fitting band extending into the gum to irritate and cause some trouble that will result in the loss of the tooth sooner or later.

Platinum can be used in the place of gold if preferred, as none of it shows.

I always use a Steele Interchangeable Tooth; in case of an accident it can be easily repaired. A crown constructed in this way should last a lifetime, everything else being equal.

CARE OF THE TEETH.*

BY H. C. SEXTON, D. D. S., SHELBYVILLE, INDIANA.

Of course, we all know an off-hand address is much better than one read from manuscript, provided, however, that your speaker is used to appearing and speaking in public. Now, I am not a preacher nor a lawyer—I am only a dentist, just a dentist—and I fear that an address from me without manuscript would be very full of long pauses, stutterings and stammerings, and maybe worse.

I fear I should find myself in the position of the stammering and embarrassed young lady who went into the drug store and said:

"I w—w—w—want a sponge bath."

The clerk turned pale.

"N—n—n—no," the young lady hastened to say, "I m—m—m—mean a bath sponge."

Now to spare yourselves and myself any such embarrassment as that, I have written down what I want to say to you, and will read it. I have been asked to address you on the subject of teeth.

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*An address before the High School pupils.

When one has but a limited time in which to speak of teeth, what phase of the subject of greater importance can he handle than the care of them. The chemical composition of the teeth is not a matter of interest to you, the diseases and irregularities incident to eruption are not particularly interesting, but what you want to know is, *how can I obtain good teeth?*

In times past we used to talk very much of this one's being given good teeth and that one's being given bad, but today we have learned better than that. Of course, teeth differ as do people. One young man may have a lung expansion of five inches, another may have only three; but provided the latter man takes care of himself and observes the well-known laws of hygiene, he will never have consumption. And so with the teeth. Their loss can absolutely be prevented in every case if only you do your part. All sickness comes from disregard of the laws of health. All bad teeth come from one cause, and that cause is uncleanliness.

I have an old grandfather of whom I am very proud. He is now 86 years old—a grand old man, and, by the way, still chewing on his natural teeth. He is quite a Spartan, and though he has had a number of illnesses in his life and suffered much pain, yet very few people have ever heard him say so. I asked him one day why he did not tell us when he felt ill. His answer I always try to remember when I am feeling under the weather:

"I keep quiet about it because I am ashamed of it," he said. "To be sick shows that you have violated one of nature's laws. A fool that tells on himself is doubly a fool; when I do not feel well, I keep quiet about it."

Now, that is the kind of doctrines we should have preached to us oftener, and it applies to the teeth just as much as it does to any other part of the body. An unclean mouth is sure to have in it, sooner or later, some decayed teeth—not *may have* decayed teeth, but is *sure* to have them.

What is the cause of caries of the teeth (caries, you know means decay)? Here it is in a nutshell: When food, especially the carbohydrates such as wheat bread and starches, lodges about the teeth, it becomes, of course, saturated with saliva; the saliva attacks the food chemically; one of the results is lactic acid; this lactic acid in turn attacks the tooth, dissolving out the lime salts, and soon you have a hole in that tooth. When this happens, people are in the habit of blaming the Lord for not giving them better teeth. The one they should blame is much better known to them than the Lord.

If, after each meal, you would use the toothbrush, thoroughly cleansing all surfaces from all food particles, then decay of the teeth would be impossible.

Sometimes, thinking along the line of my old grandfather's idea, it has seemed to me that in a few more generations cultured people, if they have not indeed learned the art of perfect care of the teeth, will at least have adopted his rule and will be ashamed to speak of having bad teeth or of having toothache. If we had a skin disease that came from not bathing, would we not try to conceal the knowledge of it from our friends?

Now, I said at the beginning I was not a preacher, but I shall have to change that a little. The modern dentist, if he at all fulfills his mission in life, must be a preacher of cleanliness; and really, what is civilization but an advanced state of cleanliness? Civilization and cleanliness are almost synonymous.

Away back in the time of Henry II, who reigned in England in the 12th century, the archbishop of Canterbury was murdered, at the royal instigation. He became a great saint, and you remember the first English poet, Chaucer, in his Canterbury tales, tells of a crowd of story-telling people who made a pilgrimage to the tomb of this St. Thomas a Becket, once archbishop.

Now, to illustrate my idea that civilization and cleanliness are much the same—the old chroniclers who wrote of Henry II's time tell us that at his murder Thomas a Becket had on a hair shirt which he had worn for two years without removal. Think of it—two years! And the archbishop of Canterbury was no dirty street loafer; next to the king, he was the greatest man in all England, and one of the richest and most powerful men in Europe.

That is a long time ago, and we do not wonder now that every few years in that age they had a plague sweep over the land that carried away thousands and thousands and thousands of people. We have since then learned that soap and water are absolute necessities if we would have good health.

But strange to say, some people have not yet learned that it is as necessary to keep the mouth clean as the body. Indeed, I may say, it is more necessary.

Let a boy go to school a whole year with a dirty face, and provided he hasn't been made sick in the meantime, he can then be washed off and there will be no bad consequences; but let that same boy never clean his mouth for a year and his teeth to the end of his days will carry the marks of his neglect.

One day I told one of my young patients he must take better care of his teeth.

"Why!" he exclaimed, "I brush 'em every Sunday just before I go to Sunday school."

It was John Wesley, I believe, who said that "cleanliness is next to godliness." That boy must have heard this saying, and from it concluded that Sunday was the only day on which it was necessary to brush his teeth.

Now, in most affairs, I suppose we must put godliness ahead of cleanliness, but if John Wesley was a dentist today, I would wager that in regard to the teeth he himself would put cleanliness first.

But besides brushing the teeth there are other things we should do, both for the well-being of our teeth and the rest of our body., The chief of these is to chew, chew, chew, keep on chewing —not tobacco—but your food when you are at the table. Many people with excellent teeth use them very little, and the consequence is, sooner or later, indigestion, stomach trouble in one form or another.

The saliva was put in the mouth for a definite purpose; it is to be mixed with the food, thereby preparing it for digestion and assimilation. When you bolt food without first chewing it well and thoroughly mixing it with saliva, you are doing somewhat like the cook who, in making baking powder biscuit, forgets to put in her baking powder. Without baking powder your biscuit will not rise or cook well, but will be a soggy, sad mess; without the proper admixture of saliva, the chemical changes necessary to give you health and strength from that food are impossible.

Then, too, if you do not use the teeth, the teeth themselves suffer. If you should bind up an arm and never use it, what would happen? It would atrophy, shrink away, become permanently useless. So with the teeth. To be in good health they must be exercised. Exercise causes a flow of blood to the parts. Blood brings life, and health, and strength.

No one realizes like the dentist the extreme carelessness of some people in regard to their mouths. They are often only aware of their mistake when it is too late. Many a time have I had a patient say:

"Oh! how foolish I have been. If I only had a chance to live my life over again I would treat my teeth differently."

But the chance only comes once. You have but one permanent set of teeth.

Once, when looking over a mouth, I said:

"Hello! You had ham for breakfast this morning, I see!"

"Naw," the man said, "that was yesterday morning."

There is no need of my telling you anything more about *him*, is there? You can all draw a picture mentally of him, and I warrant this picture is not flattering.

Some authority has said that a piece of steak should be chewed thirty times before being swallowed. We often strike steak in Shelbyville that requires sixty strokes of the molars, and then some more. You cannot overdo it. It is good for the steak. good for the stomach, and good for the teeth.

I have heard foolish people say, "What's the use of taking care of your teeth? You can get new ones and better-looking ones when they are gone."

These people are about as illogical as the man who was lying with his leg on the railroad track when the train was coming. When warned, he only replied:

"Oh! what's the difference; I can get a wooden leg when this is gone."

Now, false teeth are all right when you can do no better, but if you will take the advice of a dentist, you will avoid both false teeth and wooden legs as long as possible. Take the ones made of flesh and blood and bone.

In the 12th century Thomas a Becket was a gentleman, though he only replaced a shirt every two years, and never once brushed his teeth in all his life, I suppose, or cleaned them in any way. Today we have different standards. If you would be accounted a lady or a gentleman, or if you would associate with cultured, intelligent people, your teeth must show care and cleanliness. I hope none of you would want to live like Thomas a Becket, even to be archbishop of Canterbury and the richest man in all England.

SOME OBSERVATIONS DURING THREE YEARS' SERVICE IN THE TROPICS.

BY S. D. BOAK, M. D., D. D. S.

(Concluded from Page 265, April DENTAL SUMMARY).

NEGRITO WEDDING CEREMONY.

When a horse or a carabao (water buffalo) dies a natural death, and sometimes otherwise, the carcass is skinned and flesh cut in strips and hung in the sun to dry. When the natives have enough of dried meat stored away, that does away with the necessity of hunting bugs and reptiles for a living. All these little schemes to get along without exertion are carefully considered. Clothing is a small item with them. A species of cotton grows wild, except that it does not grow on a bush or plant as ours, but on a tree called the cotton tree. Out of this the women weave cloth in sufficient quantities to make what the soldiers call a "Gee string," i. e., a piece of cloth tied about the waist and extending nearly to the knees. They also weave cloth out of the pineapple fibre, which is very fine and worn by the higher castes; this cloth is called "jusi". The majority of the natives consider the "Gee string" sufficient wearing apparel for any human being, and such articles as shoes, stiff shirts, collars, cuffs and corsets are looked upon as modern instruments of torture. After a six months' stay at Manila Bay Station, I was ordered to Zamboanga, Mindanao, P. I., to start a base station working, and with the necessary equipment (Columbia chair, laboratory outfit, including a gasoline blowpipe), I went aboard the transport Formosa. After a four days' voyage through the inland sea of the Philippines, which, by the way, to my mind, is far more beautiful than the "Inland Sea of Japan". There you pass between islands in a high state of cultivation, every available inch of ground being utilized, and the landscape dotted with their little miniature houses. But the inland sea of the Philippines carries you between islands, wooded to the water's edge, trees covered with vines and the tall jungle grass filling in the spaces, making a solid background of every shade and hue of green imaginable; where you run between islands so close that you can throw a stone to them from the boat. We reached Zamboanga, the land of the Moros, in the evening just at sunset, and those of you that have never seen a tropical sunset certainly have a treat in store. The boat was immediately surrounded by twenty or thirty boats filled with small Moro boys, in their birthday clothes, who wanted us to pay them for diving to the bottom for pearl shells; or they would dive after a penny thrown into the water, and never miss getting it, no matter how far you throw it from them; the water here is clear as crystal, and when looking over the side of the vessel you can see the bottom, depth of the water being from 25 to 35 feet.

Zamboanga was the headquarters of the Spaniards in southern waters and also the principal commercial port of Mindanao, which, translated from Malay, signifies "man of the lake," the northern and middle sections of this island being inhabited by the heretofore invincible savage Mohammedan tribes called Moros. These natives are religious fanatics; at certain seasons of the year (feast days) some of them become "juramentados," which, translated, means "to swear an oath," to kill. Their priests, who are usually Arabians, religiously prepare them for the sacrifice, taking particular pains with their appearance, shaving the eyebrows, paring the nails of their right or knife hand to the quick, and twisting a piece of trailing vine or cord around the middle of the testicles as tight as it can be drawn. Then they are turned loose to run amuck, and kill any and all Christians they can, which entitles them to a high seat in Moslem heaven. If, however, they are killed before they kill a Christian, they are condemned to purgatory and outer darkness. The Moros have apparently no nervous system; especially is this true when they become a juramentado; they seem to work themselves into an auto-hypnotic state. I saw one instance where one of these fanatics attacked four soldiers guarding several other soldiers who were engaged on some engineering work at Jolo; the four guards began shooting as soon as they saw him, putting eight bullets through his body, one striking him square in the middle of the forehead; but before they could stop him, he had literally chopped one of the soldiers to pieces. Our modern high velocity bullets seem to have no effect upon them, as far as producing shock is concerned, and it became necessary for the soldiers to carry 45-caliber revolvers, Generals Sumner and Wood both recommending that a certain number of the troops be armed with shotguns, as that seemed the only way to stop them.

The Moro costume is extremely picturesque, consisting of skin-tight trousers, sirong, and turban of gaudy hue. All the men carry their fighting knife, which differs according to tribes, and a betel box, in which is stored the ingredients for preparing the nut for chewing.

The real industry of this section of the Philippines is the mother of pearl shell, the pearl fisheries extending from Zamboanga to the coast of Borneo. This trade is controlled entirely by the Chinese, as are all the stores, and they carry on a very lucrative business by shipping vast quantities of edible sea-weed, sharks' fins and bird nests from Paragua island to China, where they are considered great delicacies as food.

The Banjam tribe of Moros never live on land, but are born, live, marry and die on their boats, exist entirely on fish, and are a very curious people, seldom coming where they can be seen, except to sell pearls or trade. All the Moros chew betel nut, mixed with a paste composed of iron filings and cocoanut milk. The Betel nut (Bonga) is the seed of the betel palm, a slice of which is wrapped in the leaf of the Buyo plant. On this leaf, before wrapping it around the betel nut, is smeared a paste of lime and water; this is the Filipino's substitute for chewing tobacco; however, the Filipino does not add the iron filings and cocoanut milk, as the Moros do; this latter mixture causes an oxide of iron to be deposited on the teeth, which in time encrusts them, making the teeth black. When the children reach the age of puberty, the Moros file their teeth with a rat tail file, convexly, which gives them a scooped-out appearance; this filing, of course, goes into the dentine, and, one would suppose, would be very painful, but I have seen them doing it in all stages, and they do not seem to suffer the slightest discomfort from the operation. After the teeth take on the black appearance the children are married according to the wishes of their parents; this applies to both sexes.

Across the Basilan straits from Zamboanga, and in plain sight, is the island of Basilan, which is inhabited in its interior by the Yakans, a very primitive race of Moros, who wear only the breech-clout and let their hair grow long. Exceedingly fierce both in looks and disposition, these Moros file their teeth to a point; the teeth in the front of the mouth having an appearance of a saw blade. They are head-hunters, as are also many of the other tribes inhabiting the interior of Mindanao, and they endeavor to make their features as disgusting and frightful as possible for the purpose of designating their ideas, and for scaring and confusing their foes when they meet them in combat; and you certainly see some frightful-looking mouths.

As to dentistry among them, they have none other than the filing of their teeth, but the Moros that live in the coast towns and have been brought into contact with other races have a crude system of it. They fill teeth by hammering and wedging small pieces of brass wire, on the same principle as we work non-cohesive gold; also cut out pieces of ebony as near the size of the cavity as they can, and pound it in, making not even a pretense of cleaning out the decayed part. I also have in my possession two pieces of their bridge-work; the teeth were cut off and the pin used to hold the piece in place was wrapped with a piece of thread and pushed into the root canal, where the moisture caused it to swell and hold it in place. If they have an exposed pulp, or any other trouble, they patiently stand it until nature adjusts the matter. The Lake Lanao Moros also have a custom of taking the teeth of their enemies slain in battle, and either setting the crown in a ring with the roots standing up, or splitting the tooth in half and using part of it for a setting; this can better be illustrated by the one I will pass around for your inspection.

CHINESE PROFESSIONAL MEN.

The consulting room of the Chinese practitioner or dentist is a booth or tent at a street corner or in a court of a temple; you know it by the long strings of extracted teeth that hang up. On one string I noticed two pieces of jaw bone that were not very re-assuring.

The medical man has dried snakes and roots, curious herbs and out-of-the-common dried fruits. Their walls are stuck over with plasters that have done their duty and been returned by grateful patients in testimony of their efficiency. Outside of these tents or shops is always a crowd, hoping to see an operation, and no doubt these idlers help patients to bear without a moan, and often with sweet smiles, the burning, nipping, punching, puncturing and other tortures, which, with simple faith, they pay to have inflicted upon them. In China the distinction between a physician and a surgeon, I am told, is drawn by calling the former an outside doctor, and the latter an inside one. An example to illustrate: I was told by a Canton Chinaman that a relative, in fighting pirates on the West river, had an arrow shot through his arm. An outer doctor was called, who cut off the two ends of the arrow and put a plaster over the wound. "But," the patient said, "the rest of the arrow is still there; "that," answered the medico, "is not my business; you must go to an inner doctor if you want it removed." Confucious said, "It is the duty of every man to return his body to the earth as whole as when it came from his mother's womb." In deference to this dictum, the Chinese medical men do not dissect dead subjects, and are, in consequence, ignorant of the location of the largest viscera. That also is the reason given why the Chinese soldiers have a tendency to run away in battle, it being considered an act of disrespect to the parents, from whom their bodies were received, to incur any risks in the mutilation of these bodies. They say the right wrist reveals the state of the lungs and liver, and the left the heart.

The genital organs of a cat are given to promote virility; for diseases of children, centipedes are prepared. Toads' eyebrows are used to provoke sneezing, and thus clear the head. For sick stomach, earth worms rolled in honey and swallowed alive. Other medicines, infusions from bones of tigers for strength, cockroach tea, fungus grown upon coffins, shavings of rhinoceros' horn. A missionary told me he was called to see a man suffering from fits; found him on his back on the ground smelling white mice in a cage, with a dead fowl strapped to his chest and a bundle of dried grass strapped to the soles of his feet. While at Shanghai, I joined a crowd in a temple court and saw a man acupunctured for a swollen leg. About a dozen needles, like sewing-machine ones, only longer, were driven into the limb; on the top of each needle was fastened oiled tow or some other flammable material, and lighted; when the needles became redhot the flesh began to fizzle as though a beefsteak were being cooked. Superior to pain, the patient chatted and laughed with the crowd. In Canton I saw a Chinese dentist extract a bicuspid tooth for his patient with the thumb and the forefinger of his right hand, whilst an admiring crowd looked. This dentist wore around his neck a ghastly string of teeth as testimonials of his skill; he also had some crude forceps, which looked more like blacksmith's pinchers, they being used when his dirty fingers were of no avail. The Chinese believe that when they get the toothache, a small worm in the tooth is the cause of it; this idea is kept alive by the Chinese dentists, who palm a small maggot, which they keep in a box, to show the patient after extraction, for which they charge extra for securing.

Before closing my paper, it might interest you to know that since the American occupation of the Philippines a dental law was passed by the commission, due largely to the efforts of Dr. R. T. Oliver, supervising dental surgeon, United States army, who had charge of the corps in the islands. The law requires the appointing of three reputable practitioners of dental surgery, who shall be graduates in good standing of legally incorporated dental educational institutions recognized by the National Association of Dental Examiners of the United States of America. The members receive as compensation $2.50 for each candidate examined, the secretary-treasurer receiving $150 per year.

Applicants must have a diploma as either a D. M. D. or D. D. S. from a legally incorporated dental institution. The persons exempted from this law are those who have passed successful examinations before the provost-marshall-general, city of Manila, pursuant to authority from the military governor of the Philippine Islands, dated August 2, 1899, and dental surgeons of the United States army. So you can see, by the action of the military governor, that when the first expedition was sent to the islands the necessity of protecting the soldiers from empirical practitioners and quacks was recognized.

DISCUSSION.

Major Henry I. Raymond, Surgeon, U. S. Army, was introduced to the society, and spoke as follows: When I had the honor of an introduction to your president a few minutes ago, he asked me, in the absence of Dr. C. M. Wright, who was to have discussed Dr. Boak's paper, to offer a few remarks on the needs of the Army Dental Corps.

I spoke before the Columbus Dental Society upon this subject two weeks ago, and in attempting to reiterate my former remarks, I fear that I may meet the fate of Shiller's hero in "The Diver".

You remember that the king in that poem called for someone to plunge into the raging sea, from a rock where he and his courtiers sat, and recover a golden goblet which he had hurled into the depths. A page at once came forward, and bravely plunging in, recovered the goblet. After he had quaffed from it the draught of wine the king ordered his daughter to present to him, the king finally again dashed the goblet into the waves, challenging the youth to repeat his heroic feat. The poem ends with the line:

"But no wave ever brought the lost youth to the shore."

I hope, in this instance, I am not making a second plunge that will result equally disastrously to myself. For eight years we have had a dental corps in the United States army, and while this was from the first regarded as an experiment, the final verdict is, "Well done!" The general surgeons of the army corps in the field have spoken in commendatory terms of the dental corps. Line officers as well as staff officers have spoken favorably of it. When you get a word of commendation from a line officer, that is praise indeed. The medical officers of my own corps have spoken well, highly, of the dental corps.

Now the experimental stage may be regarded as past. It is generally admitted that the dental corps is not adequate to the needs of the army; it is far too small. There are only thirty dentists composing this corps. Thirty dentists to care for the teeth of 70,000 soldiers! Think of it! With our 80,000,000 of people in the United States, how many dentists serving in a civil capacity are there? Certainly not less than 30 or 40 thousand. To be sure, many never consult a dentist. In Europe a large per cent. of the population never consult a dentist, but in the United States army it is compulsory on every soldier to consult the army dentist. In one year 50,000 minor and major surgical operations have been performed in the army. That is work. I presume I am well informed when I say that a civil practitioner of dentistry does well to be able to attend to a few hundred patients yearly. Yet we have in the army only thirty dentists, and the new bill submitted to congress provides for the appointing of only 45 more.

To secure a really efficient dental corps the appointees ought to grow up with the army. The men should be commissioned officers. I do not mean to say that the man without shoulder straps is altogether outranked by one with, yet it is pretty nearly so in the army. The army dentist is today unclassifiable, if I may use the term, simply because he has no recognized rank. He is like a ship without a rudder. As matters at present are, the dentist has no authority over his patients, the soldiers. They virtually say to him, "If it suits me," and "At my pleasure," when he goes among them to perform his offices.

Now, on the other hand, holding a commission, the men understand you are sent by the president to do something, and when you speak, it is, as it were, a message from the president, calling for obedience. The corps must have authority vested in it; it must be a permanent corps, or it will amount to nothing. Under existing conditions, a number of army dentists becoming discouraged, have resigned, and have gone back to private practice.

DR. F. R. CHAPMAN, COLUMBUS: The paper gives an excellent idea of the duties and responsibilities as well as *some* of the difficulties of the army dentist.

It also suggests the educational feature of the dental corps, a feature which, perhaps, had not previously occurred to us.

Here is a body of 65,000 to 70,000 men; quite a snug little city if gathered together; most of whom, perhaps, have not been educated in the care of the teeth and to whom the services of capable and efficient dentists have not been available. Such education and such services they now not only may, but must, receive, for the care of the teeth is no longer optional with them. The recruit must be passed by the army dentist as well as by the army surgeon, and before the soldier is sent on foreign service his teeth must be in good condition and he, also, must be passed by the dentist.

Each year there are from 15,000 to 20,000 entering the army, and as many leaving it. Those leaving have had at least three years dental care and instruction. Many thousands of them annually return to civil life. The result is that they are benefited, their families are benefited and the civil practitioner is benefited; hence, whatever tends to increase the efficiency of the Army Dental Corps is of direct advantage to the civil practitioner.

The paper also demonstrates the necessity for high grade men in the service. The army dentist must be all that is implied in the title, "Doctor of Dental Surgery". He must be a doctor, he must be a dentist, he must be a surgeon.

Is there, at present, sufficient incentive for men of this kind to enter the service? In answer to this query, permit me to quote from a "memorandum" accompanying a " Bill to Increase the Efficiency of the Army":

"The position of the contract dental surgeon, officially and socially, by reason of his peculiar connection with the army, is not a desirable one for a man of proper spirit and legitimate pride in his profession. The uncertainty of his tenure of office; the lack of proper dignity and authority denied him by reason of his status as a civilian in a military organization; his ungracious and undignified title: and the uniform, which, by army regulations, he is compelled to wear, and which has recently been carefully stripped of all insignia of official rank and honorable distinction, are all potent factors in the discontent and unrest which is very manifest in the corps, and which will prevent the organization under its present status from ever reaching that high efficiency in service which it is capable of reaching under a military organization with proper physical and professional examinations for promotion."

That is the condition; what is the remedy? The remedy is found in the bill already referred to, Senate Bill 2355. The principal features of this bill are an increase in the number of dentists from 30 to 45, and the granting of commissions, ranking on entrance as first lieutenants, promotions being limited to the ranks of captain and major.

In civil practice it is estimated that a dentist can care for not more than 500 different patients per year. In the army a dentist tries to care for about 2,300, the result being, as stated in the official report on the bill, that the army dentists have never been able to perform more than 30 to 50 per cent. of the work required.

By being made commissioned officers the army dentists will be on an equal footing with other army men of professional attainments. He will have some incentive to remain in the service. As it is, he has no official standing. He naturally consorts with the officers, yet he is not an officer. He wears the uniform of the private soldier, yet he is not a private. He is a sort of a "what is it?" in the military organization. He may not command his assistants detailed from the hospital corps. He can exact no discipline, he has no promotion, no advance in salary to look forward to. Should he remain in the service 40 years his pay will be the same as the new appointee.

Gentlemen! The dental profession is not receiving proper treatment. These conditions are not only unjust, they are humiliating. As the soldier, whether private or officer, regards the army dentist so will he regard the civil practitioner. For our own sakes, as well as for the good of the profession, we as individuals and as a society should send strong endorsements of this bill to the representatives in congress from this state to the military committees in the house and the senate and to the advisory board of the National Dental Association.

At the same time, H. R. 13851, called the Navy Bill, should receive the same endorsement. This bill provides for 30 dentists in the navy, with the rank and pay of acting assistant surgeon.

The army bill has the endorsement of the surgeon-general of the army and of commanding officers and officers of the medical department.

The dental profession has been unaccountably negligent in not having urged the adoption of this, to them, very important matter.

Dr. C. R. Butler, Cleveland: I was called upon a short time ago and asked if I would take part in this discussion. I am not well posted, yet I have given the subject much thought. I am surprised to learn from Maj. Raymond's statement that the army corps of dentists is so small. It is wholly inadequate. If existing conditions as to number of these army dentists is not satisfactory, it is at least encouraging to learn that the importance of the peculiar service our profession renders in the army has received such cordial and flattering recognition. Thirty dentists to serve 70,000 men is surely an insufficient number. Any one of us in practice would consider it a hardship to serve annually a thousand patients. There seems to be no inducement to dentists to enter the service, under conditions described. It has been further intimated that even the number at present in the service may resign, unless relief from the overwork and hardships of their lot is in some way assured them. No one could possibly believe them able to serve their patients to the utmost required.

Dr. Henry Barnes, Cleveland: I have made an estimate recently, and found that in one year I performed dental service for eight hundred individuals. Two hundred persons is an average number for one dentist.

I should like to have this society take official action looking to some form of petition to be addressed to representatives of our congressional districts, urging them by all practicable means to increase the number of army corps dentists.

Dr. M. H. Fletcher, Cincinnati: One point I wish to call attention to: the last speaker made a suggestion of employing influences from the point of view of the dentists, to forward these interests. I should like to see some inside influences put into operation. Cannot we enlist the interest of influential men outside the dental profession, to in turn bring pressure to bear on the passage of this bill? Certainly, both officers and the men in the ranks need the dental corps. The wonder is, how they ever got along without. What did they do formerly, without any dentists? Did they suffer without relief, or did they go to private dentists? And in regions to which they were assigned, where even the private dentist was not to be had, what did they do?

Dr. Hammersley: Nothing enthuses me more than when I see a United States soldier's uniform. As a veteran of the late war with Spain, I am personally interested in everythihg referring to the men in the ranks, especially everything referring to my special line of ministration to them. I have seen hundreds of teeth in soldiers' mouths extracted which should have been saved. From what I have frequently observed in the army, not even the last-named service was any too skilfully performed. That was the function of the regimental surgeon. But the influence of the army dentist seems to have had some effect in improving the work of the surgeons, as refers to extractions, at least.

Dr. Boak: Major Owen was the first man to realize the need of dentists in the army. The troops in the tropics suffer with their teeth more than they do in temperate climates. Pyorrhea prevails to a large extent. The prevalence of stomach and bowel disorders has something to do with this.

Dr. Fletcher: Have you any idea how large a proportion of soldiers have actual need of a dentist's services?

Dr. Boak: Yes, sir; while I have not kept careful record, I have found that about eight per cent. of men enlisted have never had any attention whatever given to their teeth.

EXCHANGE OF PRACTICAL IDEAS

[This department being an *exchange of practical ideas,* it depends upon our readers furnishing material to keep it going. Just a few practical ideas from each subscriber will make it of mutual benefit and practical worth. Are you willing to do your share? Help the good cause along by sending the editor a few practical suggestions. Send something today. Address Dr. L. P. Bethel, 1255 Neil Ave., Columbus, Ohio].

THE PUSH OF DIOXOGEN VERSUS THE PULL OF A HORSE-SHOE MAGNET.

BY J. L. MEWBORN, D. D. S., MEMPHIS, TENN.

I see a squib in THE SUMMARY from Dr. Dewey D. Smith, of Sandusky, Ohio, in which he describes his success in removing a broken Gates-Glidden drill from root-canal by the action or pulling force of a large horseshoe magnet, but I want to mention a similar case in which I failed by the pulling force of an eight-inch horseshoe magnet, but succeeded by the explosive or pushing force of dioxogen.

You may all laugh and say that it was awkwardness or carelessness that gets a man into such tight places, but I insist, as the old lady did, that accidents sometimes happen in the best-regulated families.

It was this way:

I was preparing an upper cuspid for a doweled inlay attachment for a bridge. The nerve had been exposed and pressure anaesthesia accomplished. To facilitate its removal, a pear-shaped bur was used to enlarge the opening into the pulp chamber, but just before it broke through it became firmly imbedded the full depth of the bur in the dentine; then and there, without provocation, premeditation, or aforethought, it snapped off at the shank.

Now, Mr. "Smart Aleck," what y'r going to do about it? You can't pick it out with pliers, or tweezers, you can't dig nor pry it out with an excavator, nor can you drill it out without making the hole three times too large for your dowel pin. I concluded to, and did drill into the pulp chamber as near to the bur head as possible with the large-size "beutle-rock nerve-canal drill," in the right-angle hand-piece, and churned it up and down to—to—well! just to tickle that live nerve in there to see if it had waked up. But I churned it in just one time too often, and that time the drill didn't snap, nor break, but just naturally came in two, so close to the bottom of the cavity that no tweezers nor pliers could hold it. Then I tried the eight-inch horseshoe magnet by every possible attachment hoping to tease or pull it down, but it wouldn't come. I noticed that hemorrhage from the nerve was oozing out through the spirals of the twist drill, so I loaded my "sub-Q-syringe" with dioxogen, placed the nozzle in where the blood was oozing out and forced in the piston. As soon as the dioxogen came in contact with the blood in the pulp-chamber—practically a closed chamber—the most powerful explosive effervescence almost squirted from the mouth, and from that stream of foam something flashed by my face like a shot out of a blow-gun—and the girl picked up from the floor three feet from the chair, the head of that pear-shaped bur. As soon as the patient got her breath and that soda fountain stopped, I washed out the cavity, and there was that "beutle-rock" drill hanging out of the tooth, nearly ready to drop into the mouth. I told the patient that I had only squirted one drop of nitro-glycerine into that cavity, but if she had fallen into the hands of some fool dentist who would have used twenty drops of dioxogen instead, to a dead moral certainty, it would have blown off the top of her head.

P. S.—I would like to say to Dr. Davis that on the 13th day of June, 1865, I passed through Sandusky, as a released prisoner of war, on my way south from Johnson's Island, where I had been confined over a year, during which time I began the study of dentistry, afterwards graduating in the New York College of Dentistry.

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A SIMPLE METHOD OF CONSTRUCTING PROXIMO-OCCLUSAL GOLD INLAYS.

BY DONALD M. GALLIE, D. D. S., CHICAGO, ILLINOIS.

The great interest manifested by the profession in the gold inlay has brought to our attention many ingenious and accurate methods of construction. Some advocate the burnishing of the matrix in the cavity; others the swaging over models; many believe in the solid inlay, while others advocate the hollow. All methods have a just claim to recognition and all have their particular place.

The large molar restorations involving one or both proximal surfaces, and part or all of the occlusal, call for the hollow inlay, with its carved and swaged cusps and proximal surface soldered to the matrix.

There are many cavities in the proximo-occlusal surfaces of bicuspids and molars for which inlays can be made much easier, much quicker, and just as artistic and accurate, by the following method. (This method is not original with the writer; it is the method advocated and used by Dr .D. A. Hare, of Chicago, and many others):

Sufficient separation must be obtained so that when the inlay is completed and in place the mesio-distal diameter of the tooth will be the same as before the destruction of the tooth surface by caries.

The cavity should be prepared so that resistance form is given to it; and walls so prepared that an impression can be taken of cavity without distortion. A suitable impression tray is improvised and an impression of the cavity taken in modeling compound. This should be thoroughly chilled before removing. If, upon removing, the impression shows any signs of pulling or distortion, the excess compound should be trimmed away and the impression reseated into the cavity with the aid of warm water. Chill again and remove.

A model can immediately be obtained by the use of Spence or some other low-fusing metal, which can be run into the compound impression.

Separate and invest model in dental-lac ready for the swager. Now take pure gold, 36-gauge, size of piece suitable for the cavity, and partly burnish into model and then use the swager. Trim matrix to margins of cavity and allowing a slight overlap, again burnish thoroughly against all walls and over margins. So far this operation, from the taking of the impression to the swaging of the matrix, has taken about ten minutes, consequently the patient can be left in the chair. Now take the matrix and try it in cavity in the mouth, and if necessary burnish in the natural tooth. Fill the matrix with sticky wax and have patient bite. With warm spatula shape up the proximal surface and trim off excess wax on occlusal. Care should be taken to have marginal ridge reproduced in wax. Chill and remove wax and matrix from the cavity; smooth over any unevenness that may be on proximal surface and be careful that no wax extends beyond the edge of the matrix.

Now take a piece of platinum .001 thickness and burnish over wax proximal surface, attaching it to the wax by the aid of a warm burnisher lightly passed over the platinum. Trim even with margins of gold matrix and the wax on the occlusal surface at the marginal ridge; paint underside of matrix with whiting and invest. When hard remove sticky wax and trim investment down as small as possible.

Direct the flame of the blow-pipe underneath the investment, drop solder into the matrix. Use either 22 karat, 20 karat or coin solder. The latter is very good on account of color and flows readily. When the gingival three-fourths of the matrix is filled with the solder direct the flame to the top of the investment and finish the soldering. The solder naturally flows to form a concave surface such as we desire for the occlusal. When cool remove from investment and we have an inlay with the proximal surface covered with .001 platinum. With stone and disk this can easily be removed without affecting contour or contact point.

When soldering use a minimum amount of borax, and that should be perfectly clean.

Three-surface inlays can be made by this method as easily as two-surface, and if cusp restorations are required this can be accomplished by sweating on the gold to form same.

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A PRACTICAL METHOD OF REMOVING LIVING DENTAL PULPS.

BY E. T. LOEFFLER, D. D. S., ANN ARBOR, MICHIGAN.

The word "practical," as you all know, means that which pertains to or is grounded by actual use and experience as contrasted with ideal and speculative. Method, on the other hand, means a general or established way or order of doing or proceeding in anything, or the means or manner by which such way is presented or is inculcated. Therefore, in using the expression, "practical method," I mean a way or manner of doing things which the average practitioner can carry into effect with the facilities he has at hand.

Many of the so-called "practical methods," as given in our journals, have too much of an ideal nature and require so many special facilities that the average man will not make use of them.

The simplest, most efficient and painless method of removing the living dental pulp is as follows: Thoroughly cleanse the oral cavity by means of warm water, containing some antiseptic solution, using either syringe, hand or compressed air atomizer, in fact, any facilities the operator may have at hand. Then isolate the tooth by adjusting the rubber dam in every case in which that process is possible. Next carefully cleanse and disinfect all the exposed teeth by a 3 per cent. solution of some preparation of H_2O_2. The object of these preliminary steps is to obtain as nearly as possible a clean field of operation.

Cases in which there is already an existing cavity are most conveniently treated by carefully removing all debris and decay without pain, if possible. Then treat the cavity for a few minutes with Dentalone, a saturated solution of chloretone in the essential oils, than which there seems to be no better preparation on the market. If the cavity happens to be proximal, the matrix and matrix-retainer should be adjusted so as to change it into a simple one.

A tablet containing 1-6 gr. cocaine hydrochloride and 1-300 gr. of adrenaline chloride, as prepared by Parke Davis & Co., should now be placed in the cavity and moistened with a drop of water. Upon this is placed a piece of unvulcanized rubber and forced into the cavity with a gradually increasing pressure; a short orangewood stick fitted to the opening, and so adjusted that the patient can bring about a gradual and increasing pressure by means of the opposing teeth. Cases in which the pulp is already exposed will be ready in one or two minutes, depending upon conditions. If the pulp still continues to be sensitive, try a weak solution of cocaine without the adrenalin, and then follow with a solution of adrenalin (1-1000). Although I still maintain, with others, that there is some objection to the use of adrenalin, it enables one to completely remove the pulp at one sitting.

When there is no existing cavity one may be made in the direction of axis of the tooth, and just through the enamel, and the cocaine and pressure applied as above indicated. Two or three applications may have to be made before the pulp can be exposed. The bur used should be dipped in phenol or dentalone before using. Should the pulp still be slightly sensitive, make another application and keep up the pressure for about 40 seconds. The cavity should now be sufficiently enlarged with suitable burs so that free access can be had to all the canals. On account of the insensibility of the parts, great care should be exercised so as not to make any perforations. By means of barbed broaches, Gates-Glidden drills, Beutel-rock drills and root-reamers, previously dipped in dentalone, the pulp may be thoroughly and completely removed. This part of the operation must not be slighted if you wish to avoid the trying ordeal of removing sensitive fibres at the next sitting.

H_2O_2 3 per cent seems to be a most efficient drug for removing blood and debris from the cavity. The cavity is then flooded with dentalone, the excess removed, cotton inserted into the canals and pulp-chamber, and the balance filled with temporary stopping. This dressing should remain at least 48 hours, at which time the root canals may be filled in the usual way.

Should there be any soreness the treatment may be repeated and counter-irritants applied, aconite and iodine being a favorite one.

This method, if strictly adhered to, will give excellent results in at least 75 per cent. of cases. Success will depend largely upon the following rules:

1. Completely remove all traces of the pulp at first sitting.
2. Dip all instruments in a germicide before inserting them into the pulp-chamber.
3. Never fill a root canal at the same sitting; it will give the tooth a better chance to recover from the shock.

A METHOD OF USING DIATORIC TEETH IN PLATE-WORK.

BY C. W. MYER, D. D. S., MONTPELIER, OHIO.

Thinking that some dentists, on account of the high price of platinum pin teeth, may find it advantageous to use diatoric teeth, I will explain my method of using them to make a finished case with the teeth as firmly attached as they possibly can be, and one that has stood the test. I have been using the Ash & Sons' diatoric teeth, as they have small holes running through the body of the teeth which I utilize as follows: Take about 24-gauge iridiumoid wire, pass it through the hole in the tooth, and with stub pliers give it one twist, and cut off with shears some distance from the twist. Then, with pliers, bend each end of wire forward toward the body of the tooth, forming a small loop of each end. (See Fig. 1). Teeth are then ready to set up, the wire loops taking the place of pins. When these teeth are used in this manner you have a piece of work of which you need have no fear of the pins pulling from the plate, and one that can be finished as artistically as any vulcanite denture.

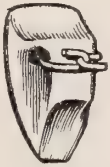

Fig. 1

ANOTHER USE FOR CARBORUNDUM POWDER.

BY J. J. RAPP, D. D. S., MADISON, INDIANA.

When carborundum wheels, disks, etc., become clogged with amalgam or worn too smooth to cut, they can be speedily restored to usefulness by dipping in water or glycerine and then in carbo-powder, using them, repeating the process same as using copper-carbo disks. Disks of all kinds will cut much faster with the powder than new ones will without it. Try it.

AN EASY-FLOWING SOLDER FOR INLAY, CROWN, BRIDGE OR CONTINUOUS GUM WORK.

BY W. L. FICKES, D. D. S., PITTSBURG, PA.

Watt's Crystal Gold and Platinum makes an easy-flowing, 10 per cent. platinum solder for uniting the frame-work in inlay, crown, bridge or continuous gum work. It flows almost as readily as pure gold. It should be used without flux.

OBTUNDING SENSITIVE DENTINE IN GINGIVAL CAVITIES.

BY F. J. MOYER, JR., D. D. S., LOCKPORT, N. Y.

Prepare a saturated solution of thymol in alcohol. Take pledget of cotton (size of cavity) and immerse in liquid, then slightly warm same over alcohol lamp and place in the cavity. Retain this in the cavity with pliers, and with hot-air syringe throw warm air on cotton until the preparation has become evaporated. Remove and proceed with the shaping of cavity, which you will find can be successfully performed, inflicting little or no pain upon patient. Try it and be convinced.

PRACTICAL FORM GUIDES FOR USE IN PROSTHETIC WORK.

BY HARRY C. KAHLO, M. D., D. D. S., INDIANAPOLIS, IND.

Text-books on Prosthetic Dentistry devote a considerable amount of space to the consideration of temperament in its relation to the selection of tooth shades for complete dentures. Students in the dental schools are taught the principles relative to the four distinctive types, viz., Lymphatic, Bilious, Nervous, and Sanguinous, together with the various combinations of these four types, and in addition they are taught the shapes and contour of the teeth, as well as the shades indicated in these temperamental types. But in this day of teaching by illustration, it would seem that the student and young practitioner could be better equipped in the knowledge that applies directly to the arrangement of teeth upon the articulator if he had something more than a theoretical idea of the subject.

It has occurred to me quite recently that a set of vulcanite forms, such as those used in technic work, representing a full upper and lower arranged in characteristic imitation of the various temperaments indicated, would prove a valuable guide, not only to the student and young practitioner, but even to the man of experience, in the placing of teeth upon the articulator. A great majority of those in practice today are spending such a large portion of their time in the restoration and repair of the natural teeth, and their thoughts are so concentrated along these lines, that they have neither time nor disposition to devote to this phase of prosthetic work.

As a consequence, they are confronted with their incompetence whenever called upon to make a full upper and lower denture. It may be that we excuse ourselves in the thought that our services are not sufficiently appreciated to warrant the expenditure of the hours which we ought to spend in arriving at the perfect arrangement of teeth on trial plates. We all see evidences of our errors, and the mistakes of others, almost daily.

Faults in arrangement are as glaring as faults in shade and contour of artificial teeth.

My notion is that we should have at hand forms, say twelve in number, four to represent the typical temperamental divisions, and eight, the modifications of these divisions, showing the arch, its general contour, etc., together with the characteristic shape, size and arrangement of teeth to correspond. These forms could be compared directly with the models of the case in hand and the mouth of the patient, and as a consequence the teeth indicated could be selected and arranged in an intelligent manner. After completing this part of the process the trial plates could be tried in, and such simple changes made as would give to the case the individuality so essential to the perfection we desire.

In the general run of cases which come to our notice it would seem that security and correct occlusion were the only two points sought by most practitioners.

Surely there are ways in which the work of the conscientious, painstaking prosthetic workman can be designated from that which is the product of the "dental parlor".

I believe the form guides would aid a great many men in improving the character of this class of dentistry.

A SHORT METHOD FOR MAKING A PERFECT SEAMLESS GOLD CROWN.

BY L. G. EGGLESTON, D. D. S., PHILADELPHIA, PA.

Prepare the tooth the same as for any shell crown, slightly larger at the neck, so that the crown will fit absolutely tight when forced to place. Now select a pure tin crown which has been swaged as nearly as possible to the tooth, instruct patient to bite into this, forming a perfect occlusion and articulation, trim and burnish well around the gum margin. The tin crown should now be removed, filled with plaster and placed upon a sharp crown flask, pour mold and swage a gold shell to the same. The gold crown thus formed should be trimmed to the gum margin, polished and set.

By this method a perfect articulation is obtained and no time lost in fitting the crown to the tooth. This method is specially adapted to teeth that are used as abutments for bridge-work when there is a close occlusion and the teeth are sensitive to grinding.

A GOOD IMPRESSION.

S. D. RUGGLES, D. D. S., PORTSMOUTH, OHIO.

It should be the aim of every practitioner, whether he be a recent graduate or one of some years of experience, to impress his patients with the fact that he is in dead earnest. I know of no surer means of creating the desired impression than system about the conduct of office and practice. Let it be understood at the beginning that appointments are to be kept, both on his part and yours, since time represents money.

Neatness is a valuable watchword; for dust, soiled linen or questionable cleanliness about instruments will never add to your fame.

Obviously, one can not observe the same stereotyped form of receiving patients, but when one is in your chair proceed systematically. Begin with a thorough cleaning and polishing of teeth, make a careful examination of all hard and soft tissues, taking one tooth at a time, and record what you find on a blank, with patient's name, the date, and the name of the person who referred him to you.

An explanation of your chart (Allen's preferred) is always of interest to the patient, and never fails to impress the fact that nothing is to be overlooked. Should you think best, name the cost of work contemplated, or if an estimate is requested, be careful to have it understood that you are giving only an approximate estimate, and then note it down in the space for that purpose. Don't fail to bear in mind that lawyers make their living out of misunderstandings. Any agreements as to payments should be noted. and let it be known that you expect them to be kept.

It is a poor rule that does not work both ways. Do your part faithfully, and should conditions arise that are not anticipated tell the patient at the time, for it may otherwise be a cause for dispute. Be absolutely honest in your dealings, and for no reason advise a patient to have work done that your better judgment tells you will result in failure. We are all familiar with the requests for crowns or bridges that we know are not indicated. Do not humiliate the patient because of his lack of information, for he may have been advised by a well-intentioned friend. Explain to him your reasons, and you will be thanked for the trouble, if not more substantially remunerated. Refrain from egotism, and always show respect for the opinions of others. Many times this will keep you out of trouble, for it is not always easy to "make good" after a mistake is once made.

It is quite generally conceded that professional men are poor business men; try to correct the prevailing opinion by rendering your statements monthly and without apology for so doing. Your dealer and landlord expect their money twelve times a year, and this is not a bad thing for your patients to know. Honest work deserves good pay and is appreciated very much in proportion to the estimate you place upon it.

COMPILATIONS

NEW WAY TO APPLY COCAINE FOR PAINLESS OPERATIONS ON THE TEETH.

BY F. TOUCHARD, PROFESSOR IN THE ECOLE DENTAIRE OF PARIS.

In a communication to the Academy of Medicine the author says that recent discussions in that society as to the value of cocaine do not seem to have modified the opinions either of its admirers or of its detractors. He himself has for some time been an advocate of the employment of cocaine anesthesia by the dentists, and anticipates that the drug will be of still more value to the profession.

Up to the present, so far as known, the analgesic action of cocaine has only been applied in the extraction of teeth, the principal indications for its use being timidity of the patient or difficulty of extraction. Cocaine remains, the author claims, the favorite analgesic, as it can be used always and everywhere—its administration, when regulated by a detailed but non-complicated technique, insuring the elimination of failure or accident.

The pain of extraction will be of short duration, if there be no complications; but if the conformation of the tooth require separation of the roots, or prior operative procedures render the extraction more laborious, it is otherwise, and then the value of anesthesia will be appreciated. The duration of cocaine anesthesia is here an important factor. The general anesthetics employed in dental practice—such as nitrous oxide and somnoform—can be

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NOTE.—"Mimicked": Readers of The Summary, and especially those who file it, are requested to turn to page 206 of the March issue, third line from bottom, and change "wrinkled" to "mimicked".

administered only for a limited period of anesthesia—too short for our purpose. Again, the administration of chloroform or ether offers inconveniences in dental practice that offset any advantages that might be obtained.

In the presence of convincing results in one thousand cases of extraction, it seems to the author but natural that the benefits of cocaine anesthesia should be utilized in other cases.

M. Reclus, in 1894, in his book on the use of cocaine in surgery, stated the problem clearly, and was astonished that the very simple procedure was not taken advantage of in current practice. He says: "Dentists, in having recourse to cocaine, anesthetize the tissues when they desire to extract a tooth, yet they abstain from its use in those painful cases in which they either extract or destroy the pulp by means of broaches or caustics. Why not, then, practice deep injection to the level of the roots? Certainly these injections prove efficient. They so act upon the nerves that lead to the pulp that although in extraction these nerves become stretched and torn, the patient does not experience the slightest suffering."

The author does not think that the advice of M. Reclus has been taken advantage of and applied with definite purpose for the alleviation of pain as it might have been in the treatment of various pathological conditions. We have hesitatingly made the experiment of bringing a relatively concentrated solution of cocaine into direct contact with a diseased pulp. The same is true as to the addition of cocaine to other preparations which have a rather variable action with the idea of suppressing the pain that makes their use necessary—as in devitalization of the pulp. The application of tampons of cotton soaked in a 10 per cent. cocaine solution to modify the sensitivity of painful dentine in caries of the second degree has but a doubtful influence even after twenty minutes' contact.

PAINLESS EXCAVATION OF SENSITIVE TEETH.

The indications and counter-indications for the use of cocaine seem clearly established by the following case: A patient called to have a tooth extracted. Upon examination it was found that the tooth required simple conservative treatment, the caries being only of the second degree. The patient was nervous and timid, and the pain in the tooth was so acute that she insisted upon its extraction, because of her fear that the pain should increase. Injections of cocaine were made in the gum as is usual in the technique of extraction. Now, while the cocaine was acting, the patient became comfortable, and decided to retain her tooth. Accordingly, beginning the work of excavation for a filling operation at once, the operator was much surprised, as was also the patient, to find that the contact of the instruments, which had previously caused so much pain, was felt merely as a vague sensation of touch. The diseased dentine was removed, and the cavity at once prepared and then filled, all being effected without causing the slightest pain.

Greatly impressed thereby, Professor Touchard resolved to apply cocaine anesthesia to any of the various painful conditions he might be called upon to deal with. The treatment was experimentally applied in the most diverse cases, with excellent results; he now feels that he possesses a simple and practical method of assuaging pain, by means of which the needed treatment of dental caries may be rapidly accomplished. In hypersensitiveness either of the teeth or pulp, particularly in the case of nervous patients, it is an advantage to have recourse to cocaine anesthesia.

He tabulates twenty observations, taken from fifty cases, and says: "The reading of the annexed observations will make this latter point clearer: You can follow the progress of insensitivity step by step, and although too much stress may seem to be laid on this point, it is a fact that, no matter what the work to be done or condition, present—excavation of softened and sensitive dentine, removal of diseased pulp, whether inflamed or not, extraction of the contents of root-canals—no matter which tooth was treated, satisfactory results were obtained."

The degree of emotion in the patient, particularly in women, was an additional reason for resorting to analgesic methods, and he has not found that such a course offers the slightest inconvenience, the patient becoming calm from the moment of realizing cessation of pain. He has not only not observed any accidents, but even any untoward incidents whatever due to the action of cocaine.

He feels that these uniformly successful results are due to the application of a well-regulated technique, and gives the following as his own procedure: The solution employed is a weak one, as advised by M. Reclus. A mixture of cocaine hydrochloride and eucaine is generally used, as follows: 1 cc. of the solution contains 15 mgm. of cocaine hydrochloride and 5 mgm. of beta-eucaine, the latter being added to counteract the vaso-constrictor action of the cocaine. Recourse has likewise been successfully had to the oily solution of pure cocaine, as suggested by Poinsot.

Finally, in the case of a highly congested condition of the diseased parts, rendering the effect of the cocaine on the inflamed areas uncertain, and the best results have been secured from the addition of adrenaline to the cocaine. Adrenaline seems to limit, and thereby reinforce the action of the cocaine; its action may be likened to that of the elastic ligature placed at the base of a finger into which cocaine is to be injected. Adrenaline serves as a vascular ligature, so to speak.

Two conditions must be observed in order to obtain complete anesthesia: By means of injections circumscribe carefully the tooth to be extracted, and ascertain accurately just when complete anesthesia is established. The majority of the failures registered against cocaine are due, he believes, to the non-observance of these details.

The technique of the injections is likewise important; attention should be given to every minute detail. It is not always an easy matter to make an injection in just the right place, in tissues which are frequently no thicker than the diameter of the needle. Steel needles should be used, very fine and sharp-pointed. Needles of platino-iridium, although their sterilization by means of the flame is very easy, have the inconvenience of being less keenly pointed, and they appear, when seen in the same lighting, of heavier diameter than the steel needles. Steel needles should be sterilized by immersion in chloroform for a quarter of an hour—or, better, in a drying stove.

TECHNIC OF INJECTION.

The injection becomes more difficult in proportion to the depth of the root; it is also more difficult when upon the external surface than upon the internal, and in the lower than in the upper jaw. It should be made slowly, the needle being inserted more and more deeply until it has penetrated to a depth of about 2 cm. in the direction of the apex of the root, keeping it as near the periosteum as possible. If the injection has been well made it will not be long before the gum assumes a characteristic whitish tint, and at the same time its sensibility disappears. The sensibility of the tooth subsides gradually through a period of time varying from two to fifteen minutes. The anesthesia lasts from ten to forty minutes—sometimes more—gradually disappearing, the first part to come from under its influence being the most sensitive, viz., the pulp. While it lasts the operator usually has time for the performance of the otherwise painful parts of the operation; but if further anesthesia be necessary another injection will supply it providing that the prescribed danger zone be not overstepped, *i. e.*, that the total amount of cocaine injected does not exceed the safe physiological dose. A cocaine injection not exceeding a total dose of 0.05 gramme in a single sitting will occasion neither accidents nor incidents; still less will there be reason for fear if a weaker solution be used. The after-sensations following the operation are only such as would follow any operation, whether cocaine be used or not. The injuries inflicted on live tissues by the procedures necessary in an ordinary filling are always followed by a few hours of discomfort, rather than pain. What is of importance to know is that the rapidity of cocaine treatment—which to some extent enables us to surmount obstacles—by no means implies any increase of subsequent pain.

The exact physiology of dental anesthesia by cocaine is still to be established. Taking into consideration the vascular and nervous wealth of the periosteum, its connection with the gum on the one side and with Tomes' fibrils on the other, and the latter in their turn with the pulp there is every reason to believe that cocaine acts gradually, anesthetizing first the peripheral parts and reaching the center last. In favor of this hypothesis is the fact that after a gingival injection the dentine is anesthetized before the pulp. As regards the exact action of cocaine on the nerve elements, as indicated by M. Dastre, it is comparable to a "curare" acting upon the nerve terminals. The ignorance under which we labor as to where the nerve fibrils of the tooth end forces us to remain without complete demonstration of this. Possibly cocaine may act directly on all the dental tissues by suspending the activity of the cell in each case. Even though the exact progress of the anesthesia be not scientifically established, the anesthesia itself is practically apparent in the whole extent of the tooth.

In two cases of failure reported, both being cases of acute pulpitis, the cocaine injection anesthetized the dentine, and the pulp was reached without pain; but as the latter remained sensitive, recourse was had to slow devitalization by means of arsenious acid. In these two cases the solution of cocaine and eucaine was used. In two other cases of acute pulpitis, however, afterwards treated, complete anesthesia of the pulp was obtained with a mixture of adrenalin and cocaine.

The author considers that counter-indications against the employment of this method—the use of which he proposes to make general—are but few. They are such as apply to cocaine in general, and are of course lessened when weak doses are employed.

In cases of gingivo-periostitis, cocaine injection will render but little service; this matters little, however, as treatment of the tooth in such cases is seldom painful. Adrenalin, modifying the circulation of the inflamed tissues, would assist the action of cocaine; hence the good results obtained in cases of acute pulpitis. On the other hand, it would be useless to have recourse to cocaine anesthesia in the treatment of caries of the fourth degree. The tooth being dead, its treatment would be painless even without an anesthetic.

He sums up the advantages to be obtained from gingival cocaine injections in painful dental operations as follows:

CONCLUSIONS.

(1) It always suppresses pain, often as intense as that produced by the extraction of a tooth, and certainly for a longer period than is required for an extraction.

(2) In caries of the second degree the pain otherwise experienced in the preparation is avoided. The means ordinarily applied to obtain insensibility of the dentine have but little efficacy. The treatment under cocaine anesthesia is rendered more rapid as it requires but one sitting to accomplish what could otherwise have been done—and that less perfectly—only in several treatments. Cocaine anesthesia permits the painless preparation of retention points in the case of a gold filling.

(3) In caries of the third degree, the pulp being anesthetized, one can at once proceed with the treatment. Cauterization is avoided, and the operation is rendered briefer.

The observations tabulated by the author apply to cases of caries of the second and third degrees. Two were deemed to be failures—only relative failures, as the dentine was anesthetized. Attention is called to a case in which an injection of cocaine adrenalin was successful when employed one week after cocaine by itself had failed.

The duration of anesthesia was not always recorded in these cases, but it was practically maintained for a longer period than would have been necessary for the performance of the cavity preparation.

M. Touchard has frequently had to treat females of highly nervous temperament where the lesions were very painful; and the results obtained in such cases were all the more satisfactory.—*L'Odontologie.-Dental Register.*

THE MATTER OF COMMISSIONS.

BY W. J. BRADY, D. D. S., KANSAS CITY, MISSOURI.

At the last meeting of the American Society of Orthodontists, held in December, 1906, in New York City, the following resolutions were adopted:

New York, December 29, 1906.

Resolved, That in the opinion of the members of the American Society of Orthodontists, the practice of paying a commission, honorarium, or any sort of fee, in consideration for the reference of a patient, is both unwarrantable and unprofessional; and be it

Resolved, That the payment of any such commission, honorarium, or fee by any member of this society, shall be sufficient cause for the expulsion of said member, by vote of the society after conviction; and further be it

Resolved, That in case of co-operation in the care of a patient between a general practitioner and an orthodontist, there shall be no division of fees, but each man shall render a separate bill for his personal services.

Similar resolutions were adopted a few weeks earlier by the members of the Alumni Society of the Angle School of Orthodontia, at the annual meeting in St. Louis. These two resolutions undoubtedly represent the sentiment of the large majority of orthodontists in the United States, and no doubt will put an end to several most vexatious conditions which have arisen, together with the practice of orthodontia as a specialty.

The early specialists in orthodontia deemed it desirable to offer a commission, or percentage of the fee, to those referring cases to them for treatment. This was primarily a business proposition altogether. It was then more or less of an experiment to start as an orthodontist, and both specialist and general practitioner had serious misgivings as to the success of the venture. The few who specialized did so against the advice of their friends, and gave up very satisfactory general practices for the new and as yet untried field. In order to be reasonably safe in the venture, the expedient of offering a commission was used, not because of any real demand for it, but simply to be sure of getting enough business to pay rent and keep biscuits on the table.

This seemed at first a sensible and altogether equitable arrangement. The marvelous success of orthodontia when practiced entirely aside from general practice, had yet to be demonstrated. The specialists had not yet acquired skill and knowledge much above many other general practitioners. The revolution in methods of practice that has occurred in the last ten years was not imagined in the wildest fancies of the most sanguine of the new cult.

As time went by it soon became evident that the referring of orthodontia cases to a specialist was no longer a mere matter of convenience, but a matter of necessity, when the best interests of the patient were considered. The specialist was able to accomplish such very superior results that the general practitioner could not, in justice to either himself or his patrons, attempt the same if within reach of a competent orthodontist, or at least should attempt only the simpler cases. When orthodontia became the changed and marvelous branch of practice that it is today, the question of commissions became changed as well..

The referring of an orthodontia patient to a specialist is no longer a mere matter where one dentist does work for another which the second does not care to do, but is an affair where the general practitioner sends the patient out for services that he is neither prepared nor qualified to give himself. In most cases there is no greater difference between sending the patient to an orthodontist than to a nose and throat specialist or an oculist, and a commission is no more justifiable from one than from the other.

It must be admitted that the practice of giving commissions has proven very unsatisfactory all around. It increases the charges to the patient, it decreases the pay by a large slice to the man who does all the work and who has all the responsibility, and at last, but not least, it frequently leads to misunderstandings between practitioner and specialist. Often the man referring the case seems to have his head turned by receiving money through a commission, which sometimes leads to assuming a most unwarranted feeling and air of proprietorship toward the orthodontist. In the past it may have been justifiable at times to give commissions in orthodontia, but that day is past and gone forever.

Orthodontia has become established as a branch of practice just as certain and exact as crown and bridge-work. Success follows correct treatment just as surely as in operative or prosthetic dentistry. The party referring the patient to the orthodontist has no more responsibility than when he recommends an oculist, a surgeon, or a bank, and usually loses no business whatever for the majority of orthodontia cases are not profitable to the general practitioner on account of his unpreparedness for such work. There can, therefore, be no reasonable ground on which a practitioner may demand or expect a commission.

On top of all this, it has been found that an orthodontia practice cannot be maintained through paying commissions. Such a practice must be built up just like any other dental practice, when new patients come largely through the good offices of former patients. Paying a commission is a mighty poor business policy in the first place, to say nothing of its moral or ethical aspects.

That section of the resolutions which deals with the co-operation of specialist and general practitioner is the commission question in modified form, and reveals to the outsider but little of what it means to the orthodontist. This has been even a more vexed point than the other, as any specialist will testify. Practitioners frequently overestimate the value of their part of the services in a combined case, and where one fee is named for the whole case there is often trouble over the division of the same. The writer has had the experience of having his colleague want half the entire fee for keeping the retaining appliances cemented on for a few months, after a long and difficult case had been brought to a highly satisfactory stage. Still another dentist found he must have considerable pay for this same work where he had promised to look after the matter free of charge through personal considerations to the patient, and expected a big slice of the fee (already small on account of misfortune) for this service.

Altogether these resolutions deal with matters of business, ethics, and common, ordinary right and wrong. From a business standpoint the payment of commissions in orthodontia is unnecessary and unjustifiable. Any business that is worthy to endure must succeed by its own merits. Commissions may boost things at the start, but cannot maintain the condition long. The best business houses all over the land have abolished all forms of commissions, except such cases where a commission is the only just form of pay for service rendered. It is unjustifiable to demand or expect a commission where no real monetary service is rendered nor can be rendered. If a man cannot recommend the best thing he knows in case he cannot perform a service himself, he is decidedly lacking in his duties to his fellow-men.

From the ethical standpoint commissions in medical or dental practice are decidedly questionable. It is true that many surgeons, sanitariums, institutes, etc., give commissions upon cases sent them, but the practice cannot be defended with any propriety. There is something abhorrent in the idea of making capital out of another's misfortune, and charging a man for advising where he may find relief. The practice is strongly rooted in medicine, however, and is one of the many forms in which our national affliction—graft—manifests itself.

In conclusion, it should be said that the casual reader may think that the orthodontist's anti-commission resolutions are merely their resolves to keep all the fee themselves, and thus show their greediness, but in reality the resolutions are a stand for justice and right to the patient, for lesser fees paid to the man or men who do the work, each according to his just deserts, and nothing added as "rake-off," under whatever guise.—*Western Dental Journal.*

OBSERVATIONS ON THE RETENTION OF PULPLESS TEETH IN THE JAWS, WITH INDICATIONS FOR THEIR REMOVAL.*

BY A. W. HARLAN, M. D., D. D. S., NEW YORK CITY, N. Y.

Pulpless teeth may, by their presence in the jaws, give rise to many ills. During the thirty years I have been in practice I have had opportunity to make many personal observations on the retention of pulpless teeth. It is a necessity to retain many pulpless teeth in the jaws for cosmetic reasons, i. e., for the support of crowns and bridges, but such teeth, when causing constant pain and distress to the possessors, should be sacrificed.

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*Read before the American Dental Society of Europe.

TEETH WHICH MAY BE RETAINED.

Such teeth as those having roots more or less regular in their outline should be retained when it is possible to fill the roots, approximately, to their apices. Teeth of normal shape having recently been deprived of their pulps should be retained in the mouth; this will include those teeth whose pulps have been removed to divert nutrition to the pericementum, as in acute cases of pyorrhea alveolaris. Some teeth may be retained even when one root has been amputated to cure an abscess, or to remove the necrosed apex of the root, to prevent destruction of the socket.

A pulpless tooth, if it does not often give rise to occasional neuralgias, should be retained. Pulpless teeth, even when their roots are covered with areas of hypercemental growths, may be retained in the mouth, if there are good antagonists to give them exercise. It is my opinion that a pulpless tooth with a normal root may be allowed to remain in its socket, even though an abscess may have been discharging through a fistula for several years, if the patient is robust and is not suffering from some constitutional disorder that would prevent healing of the abscess.

Pulpless teeth may remain in the mouth even after the deposition of salivary or serumal calculus on the roots of a tooth, provided the deposits are removed and the teeth are held firmly in their sockets by splints or other mechanical devices. It is very necessary, however, that all deposits should be removed from the roots and irritating margins of necrosed bone should be scraped away.

A tooth having a mummified pulp, if the root is reasonably straight, should be retained after the *mummy* is removed and the root filled. Pulpless teeth having perforated roots, from misdirection of drills and burs, may be retained if such perforations are filled with paraffin or with some other approved material, lead, gutta-percha or creosoted wood.

Pulpless teeth, with encysted apices, may be retained indefinitely in the mouth provided the roots are well filled and such teeth have good opponents.

It may be advisable to retain a pulpless tooth, at times, even though useless and discharging pus through the gums, until the eruption of an adjacent tooth to prevent an irregularity.

Anchylosed pulpless teeth, when not causing pain or any disfigurement, should be retained in the mouth.

All pulpless teeth not having hopelessly incurable abscesses may be retained, and discolored teeth may be cut off and crowns adjusted provided the roots are well filled.

TEETH THAT SHOULD NOT BE RETAINED.

Teeth with split roots, impossible of perfect apposition of the parts; nearly all teeth where the roots are split one-third to one-half their length should be removed, with few exceptions.

All teeth having no exercise or antagonism are useless. When devitalized, they may serve a temporary purpose, but many neuralgias are due to their presence. Teeth with deposits reaching to the apices, and covering them in many cases, are unfit to be retained in the mouth. There is not the slightest ground for the belief that the pericementum or periosteum will become reattached to such roots. The pockets are constantly filled with decaying and decomposed food, blood, mucus and other debris.

Teeth with irregular, twisted and compressed roots, impossible to fill with any known material, should be removed. Caries or necrosis of a socket containing a pulpless tooth should be sufficient cause for its removal. Malformed molars that are pulpless, impossible of being rendered useful for mastication, should be removed. Pulpless deciduous teeth which prevent the emergence of the successors are useless and should not be retained in their sockets. The indications for the removal of pulpless teeth are a recognition of their total uselessness and the impossibility of restoring their functions.

All those teeth which are impossible of being used for retention of crowns, bridges or artificial teeth should be removed. A tooth with a denuded and discolored crown and root is an offense to the eye and should be replaced with something more in keeping with its surroundings.

No pulpless tooth or root should be retained in the jaw when it gives rise to continual pain in the eye, ear, side of the face, neck or shoulder. Any pulpless tooth which discharges into the antrum as a rule should be extracted; pulpless teeth having abscesses attached to their apices, discharging on the face, in the nose or through the hard palate after surgical intervention should be extracted. Pulpless teeth, with extruded malformed crowns in any portion of the mouth, unless the roots can be used for crowns, plates or bridges, should be extracted. Many teeth, even after the amputation of a root, are useless because the new growths taking place around the amputated stump fail to fill in the root space, and the food lurking in such spaces decomposes, rendering the pockets foul and nauseating.—*Dental Review.*

RESTORING A FRACTURED TOOTH.

BY A. E. MATTESON, D. D. S., CHICAGO, ILL.

The restoration of a fractured tooth where the fracture extends beyond the alveolar process, usually in an oblique direction, has been a perplexing problem, owing to the difficulty of obtaining a correct impression from which an accurate model of the end of the root can be produced for the restoration.

The following method in detail will enable one to do this in porcelain, when the fractured portion has not been removed.

Cut off the crown slightly below the free margin of the gum, except the fractured piece, which should be left standing about one-eighth of an inch above the gingival line.

Prepare the canals to receive the iridio-platinum dowels. I prefer making these from the square wire, shaping with a hammer on an anvil at red heat. These dowels should be made a close fit in the canals, on the sides on which stress is exerted; the protruding ends brought together in a central position of the tooth and united with 25 per cent. platinum solder.

The dowels are placed in position and an impression (in modeling compound) taken of the end of the root and proximal surfaces of the adjoining teeth. (Figs. 1 and 1a).

A second impression is taken, including several of the adjacent teeth, and a third impression of an equal number of the antagonizing teeth, for the purpose of articulation in making the crown.

The diverging dowels are so waxed as to permit "drawing" from the model and covered with No. 60 tin foil.

Extract the fracture and pack the pocket with temporary stopping or cotton.

Place the fractured portion and dowel (with the tin casings)

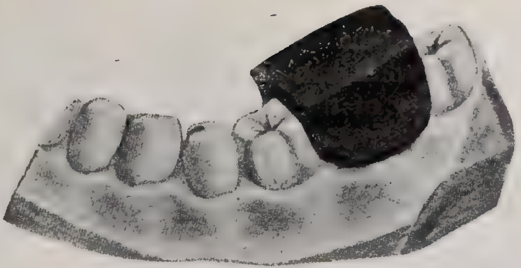

Fig. 1.

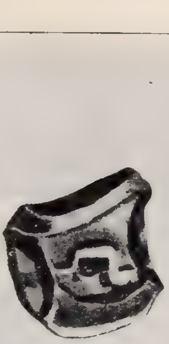

Fig. 1a.

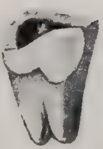

Fig. 2.

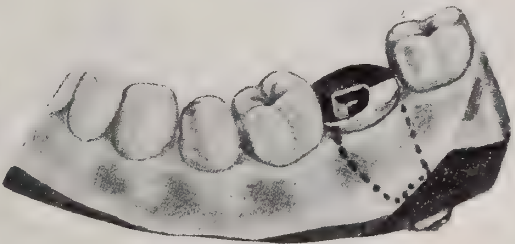

Fig. 3.

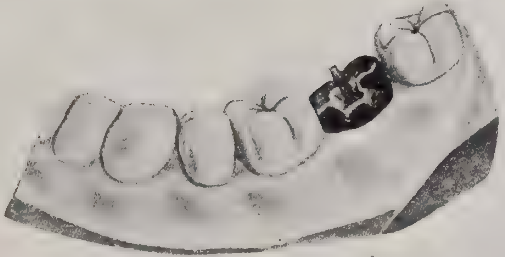

Fig. 4.

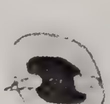

Fig. 5.

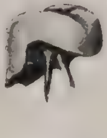

Fig. 6a.

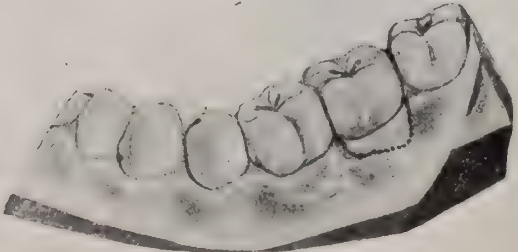

Fig. 6.

in the first impression and make a model to conform to the end of the root and converging toward the apex, of cement mixed to the consistency of thick putty; when hardened sufficiently separate (the outline of the periphery of the root should be distinctly shown if the impression was correct). Carve this model to this outline so that it will freely pass between the adjacent teeth and converging toward the apex. (Fig. 2).

Place the fractured portion with this model in the second impression, oil it and fill with plaster. (Fig. 3).

Remove the impression and cut through the model an opening to the apical end of the cement model and push it out. Remove the fracture and burnish a disk of soft platinum plate No. 36 (B. & S.), covering the end of the root; puncture to receive the dowels and press to place, remove them together, in their respective positions, invest and unite with 25 per cent. platinum solder; burnish again and trim to the periphery. (Fig. 4).

Select a diatoric tooth (Fig. 5). One with a large recess is preferable, as it will facilitate the packing of the body around the dowel, which should extend enough to support the tooth when ground to occlusion and alignment.

Shellac varnish the outer surface of the disk, pack the porcelain body around the dowel in the recess and build into contour; when sufficiently dry push out the cement model, carrying the crown with it. The crown will then drop from the model if the sockets have been oiled.

After the first firing the fissure formed by the shrinkage is filled and the contour again restored; two firings are usually sufficient. (Figs. 6 and 6a).

More than one dowel is not demanded if the pulp chamber can be formed so as to prevent displacement from stress in mastication.—*Dental Review.*

* * *

A SYSTEM OF UTILIZING ATMOSPHERIC PRESSURE FOR THE RETENTION OF LOWER PLATES.

BY DOUGLAS H. YOUNG, ATTICA, NEW YORK.

Physical science tells us that the atmosphere exerts a pressure of 14.7 lbs. to the square inch on all objects on the earth, our bodies included. Since the average man has a surface on his body equal to about 16 sq. ft., we find that by multiplying 144, the number of square inches in a square foot, by 14.7, the number of pounds pressure on each square inch, that it equals 2,116 pounds, or over a ton, to the square foot, and since we have 16 sq. ft. of surface on our bodies, the pressure upon each of us is over 16 tons.

This gives an idea of the strenuous life we are compelled to live. This high pressure, however, is our birthright, and not our choice.

In this principle there is nothing new to us; we all familiarized ourselves with it when boys in school, and yet few of us realize that it is true today, and that it is an ever-acting law of nature, which, if brought under our control, may be made to serve many desirable purposes.

This principle has been very successfully applied in the retention of upper dentures, which not so very long ago were held in position by springs. It is only seven years ago that, in calling upon a dentist in Birmingham, England, I noticed in his office a set of plates containing these springs. In referring to them he remarked, "O, we do not use them so very much now."

It now remains for us to find out how we may best apply this law to the holding in position of the lower teeth.

This brings us to the much despised subject of plates, which only a country dentist has the gall to tackle. But if in considering this subject tonight we shall be able to help each other in solving this problem, shall we not stand justified?

Doubtless many of you have your own methods of securing atmospheric pressure on full lower plates, and some may never have tried it at all, so in order to bring out discussion on this subject I will endeavor to describe a method of securing atmospheric pressure on the full lower plate which I have used for several years. For an impression material I have used compound—Perfection Compound has given as good satisfaction as any. Plaster of Paris, of course, is an ideal impression material, but it does not give the kind of impression that is desired in this particular method.

The compound is warmed to a consistency at which it will adapt itself readily to the shape of the mouth; it is placed upon the tray, put in the mouth and pressed down almost as far as you desire it to go; then wait for a space of a minute or two until it hardens slightly.

During this interval of time I have my assistant direct a current of cold air into the mouth from a rotary fan in the dental engine; this chills the outer layer of the compound and prevents it from flowing away from the jaw when pressure is put upon it. While the layer of impression material that is in contact with the tissues is still warm and plastic, press the tray down just a little further and then hold it steadily with about half the force used in pressing it down the last time, until it is quite hard; then remove the tray and pour the impression.

In order that we may know why we proceed in this manner, let us go over the taking of this impression again. In the first place, when the material is put in the mouth and pressed down, we get an ordinary impression; after it is allowed to stand a little time, the outside chilled and pressed down a second time, then the impression is changed from the ordinary impression, but in what way?

When pressing down on the tray the second time the hard ridge of the alveolus cuts just a little deeper into the impression material and remains practically unchanged, while the soft tissues down on the sides of the gums along about where the border of the plate comes are compressed slightly. When the plate is made on the model from this impression and put into the mouth, the margins of the plate are sealed all the way around, and this converts the whole lower surface of the plate into one great suction pad—if we may use that term.

One of the most delicate parts of this operation is the trimming of the plate to just that line that will best seal its borders, for if it is too long it will give the muscles a chance to displace it; if too short, it may allow the air to pass in and thus defeat our whole purpose.

This may seem like a strong statement, but it is self-evident that the upper plate is retained by air pressure against gravity; the lower plate adds its own weight to atmospheric pressure, and thus, compared with the upper, the lower has twice its own weight to add to the argument that it is a better subject to be retained by atmospheric pressure than the upper plate.

The lower plate has always been the bane of dentistry.

Of course we would all rather fill, treat, crown or bridge the conditions of the mouth, but occasionally there come to us those conditions for which the science of dentistry has nothing better to offer than a plate. How necessary, then, for the comfort of the patient and for our own credit that it be made to *stick.—Dental Practice.*

SUGGESTIONS

WEIGHTED DENTURES.

W. M. Bartlett, St. Louis, Mo.

The subject I wish to touch upon is that of weighted lower dentures. This form of denture has been and still is advised by many in cases where we find the edentulous jaw flat, due to a complete resorption of the ridge, leaving no well-defined surface to stay the denture in position.

To obtain beneficial results in these cases it has long been the practice of many to give to the denture such an amount of weight as, with the assistance of gravity, is calculated to retain the denture in position during the movement of the jaw.

After a careful study of this annoying class of dentures, I have come to a positive conclusion that weight beyond that which is absolutely necessary in the construction of any given class of denture is a detriment instead of an advantage, as far as its utility is concerned.

I can cite you a number of cases where individuals have come to me wearing weighted dentures which were constructed by competent prosthodontists. Some of them were made entirely by the cheoplastic process; others with cheoplastic base, the teeth attached by means of vulcanite; some with block tin bars imbedded in the body of the vulcanite, and others made of weighted vulcanite. It was the general expression that the denture was an annoyance, causing them considerable discomfort, not only during the process of mastication, but while speaking or in moving the head in any position varying from vertical.

If we stop to consider these complaints we can see that they are well founded. First of all, general discomfort is no doubt due to the fact that the weight constantly reminds the individual of some foreign body in the month. If allowed for a given length of time to remain in one position, the weight, with gravity, is bound to produce a certain amount of irritation, which, though it be slight, is yet enough to cause on the part of the individual a desire to shift the denture from its bearings, and in the course of time we find the individual acquiring the nervous habit of continually shifting the denture about in the mouth. Make a note of this and watch any of your patients who are wearing a lower weighted denture, and I warrant that you will find this to be correct.

During mastication I find that the weight tends to restrict the individual to only one movement of the jaw, and that is the hinge movement, producing nothing more than a mashing of the food. This is due to the fact that there is an unexplainable desire on the part of the individual to contract the muscles of the lips and cheeks against the denture, with the tongue at the same time acting as a lingual brace, preventing a free use of the jaw in its lateral movements. You will find that when the head is moved from its vertical position the denture will always follow in the direction of the movement, so that if the head is moved downward while the jaws are not in the position of occlusion there is danger of the denture falling from the mouth.

If weight plays an important part in staying these dentures in position, then the ideal denture for these cases would be continuous gum. However, I have often heard the late Dr. H. H. Keith, of St. Louis, who was considered by all who knew him one of the most capable in this line, say that he seldom had success with a lower continuous-gum case where the ridges were resorbed, leaving a flat surface. Recalling these remarks from this eminent man led me to experimenting as to how to obtain the most beneficial results in constructing these dentures. My experiments have forced me to the conclusion, no matter how absurd it may sound to you, that the lighter they are constructed the more serviceable and comfortable will they be to the wearer. In constructing, the adaptability, proper articulation of the teeth and all other points that enter into thorough make-up should be considered. With lack of weight the individual is not always reminded of its presence to the degree that he is with one possessing weight. There is a freer movement of the jaws, due to laxity of muscular restriction, insuring better mastication. The denture keeps its place better during movements of the head; and the floater, as it may be termed by some, is to me, if not to you, the denture that will give satisfaction.—*Dental Era.*

PROSTHETIC TECHNIQUE.

G. V. Smith, Aurora, Ill.

A porcelain bridge with a platinum foundation is naturally stronger than the one devoid of a metallic framework. This work is advocated in the extensive bridges, but the smaller ones may be constructed of porcelain without the aid of platinum. A bridge, as we all know, is the assembling of one or more dummies with two or more piers or abutments. I will not comment upon the advisability of placing a porcelain jacket crown upon a live pulp, as all are aware that it has been successfully done. In making the porcelain bridge with a platinum foundation the abutment should be treated similarly as for the placing of a Spaulding jacket crown. A die and counter-die is correctly obtained of the prepared abutments, then a platinum plate of No. 30 gauge is swaged to the die. These matrices are then placed upon the crown of the teeth and trimmed to the ledge at the gingival line. A square platinum bar, No. 14, with one or more uprights for the support of the porcelain dummies, is then correctly fitted between the abutments and soldered with platinum solder. Thus we have a platinum foundation preparatory to the manipulation of the porcelain. With this foundation there is no possible chance of the displacement of the matrices, which fit snugly about the abutments.

We can now proceed to build our porcelain by whatever method we choose. It may be the Spaulding jacket method with ground facings for the abutments and dummies, filling in with porcelain to the required contouring and occlusion, or by a special method I have of building and contouring the abutments and dummies while the platinum foundation is within the patient's mouth. We all know that the porcelain will shrink, and it will be necessary to build on more porcelain and contour many times before the correct occlusion is obtained. The prosthetic technique of the above has been very briefly described, but one could better comprehend it by a demonstration.

In building a porcelain bridge without a platinum foundation, the abutments are ground similarly to the description above. Then a platinum matrix, one-thousandth of an inch fine, is burnished to the crown of each pier, and our Spaulding jacket crown is constructed. When one abutment is baked to a biscuit finish we can join an adjacent dummy to it without destroying its relation. Where the two parts of the bridge have shrunk and still retain their contour and occlusion we can join them by placing porcelain in the intervening space and building the bridge to its intended contour and occlusion. The question as to shrinkage, which disturbs the occlusion. is often asked. If the manipulation of the porcelain has been properly carried out and the intervening spaces are infinitely small, when they are filled with porcelain the shrinkage will be reduced to a minimum. During the last year I have made a few bridges of this last type and have had notable success. The shrinkage was unnoticeable when I tried the bridge preparatory to cementing it, as the jacket crown abutments fitted perfectly.

A WORD ON THE BAKING.

Before concluding I wish to say that much of the success as to durability of porcelain bridges is due to the baking of the porcelain. If it be overbaked, the bridge is almost sure to crack under the stress of mastication and in time to fall away. I have seen many examples of this kind. It is far better that the bridge be underbaked than overbaked, as in the former case the resistance of the porcelain would be greater than when overfused. One can soon ascertain the proper baking after a few attempts.

As for the value derivable from the prosthetic side of this paper, I am afraid there is something wanting, as it is most difficult to depict the process of baking and manipulating porcelain so as to obtain the least shrinkage, but I cannot speak too highly of the possibilities attainable from the use of porcelain in the construction of bridges.

Having used a number of porcelains, I think I can safely say that a porcelain fusing at 2650° Fahrenheit is the most suitable one for bridge work.—*Dental Cosmos.*

PREPARATION OF ROOTS AND CROWNING.

N. S. Jenkins, Dresden.

Long ago I became convinced, through observation, that fractured or loosened roots, bearing artificial crowns, came to grief almost wholly through faulty manipulation.

The weakness usually lay in pins insufficiently resistant to lateral pressure, in the first instance, and to irritation, caused by imperfectly fitting bands, in the second instance. If an unbendable pin be cemented into even a frail root which has a reasonably good attachment to the alveola, that root will continue to do good service for an indefinite time. Place in it a pin which yields under the stress of mastication, and fracture, or disalignment of the crown, is inevitable. Prepare a root as for a "Richmond crown," with a band extending around the root under the free margin of the gum, and you have, almost without exception, a condition which leads to gum absorption, to unsightly exposure of the band and to final destruction of stability. There are of course, cases where a band may not only be tolerated but where it seems indispensable, but these cases are extremely rare. To follow the teaching of Nature is true Wisdom. We all know that when a crown succumbs to decay the root also decays, usually concave from the periphery to the pulp canal. At last, even when only a thin margin of cementum and dentine exists, the union of the hollowed root with the alveola is still firm and healthy. If looseness obtains it is through suppuration or calcerous deposit, both of which conditions are susceptible of cure through appropriate treatment. What liberty, then, does Nature indicate may be taken with a decrowned root? It may be ground to the desired relation to the gum and then fearlessly countersunk to form a cavity into which a platinum iridum cap may be fitted; a cap which extends exactly to the edge, making a continuous line with the gum.

Why should the root be countersunk? Firstly, because at this critical point the greatest strength of the crown is needed; and secondly, that the completed crown, when set, may go exactly into place, like an inlay, without twisting by a hair's breadth out of position.

The method of making the cap, which I have found most desirable, is to take an impression with an oval stick of impression material softened to a slight degree at one end by heat. The gum yields to this direct pressure and an accurate impression of the face on the root is easily secured. From this a plaster cast and fusible metal die are made, in the usual way, and a cap of thin 10 per cent. platinum iridium is stamped.

Why not simplify the process by burnishing pure platinum directly over the face of the root? Because it *is* pure platinum and therefore too liable to bend. The cap must have, for absolutely accurate results, a certain rigidity which can be imparted to it through iridium alone. For this purpose a 10 per cent. alloy is sufficient and may very generally be best employed of the thickness of 35 American gauge.

Last comes the question of the pin, which must be able to withstand any stress applicable in the mouth. After long experience I have adopted 30 per cent. platinum iridium wire as most desirable. For a time I thought 20 per cent. was sufficient, but I have found some instances where its resistance was not entirely adequate, so that I have now settled upon 30 per cent. as the seemingly ideal alloy for the purpose. Laboratory experiment shows that wire of 30 per cent. alloy has nearly twice as great an elastic limit as wire of 20 per cent. alloy.

The sizes 14 and 16 American gauge seem equal to all practical requirements, and I have had pins of these diameters pointed, so as to conform to the instrument with which I finally drill out the canal, made in various lengths, so as to be quickly adapted to the case on hand. This alloy should always be carefully annealed before being rolled or hammered to change the shape, as is sometimes desirable in a root with a flat canal, and, if bent for connecting wires at nearly right angles it is well to do so under a white heat.

Given, then, the exactly fitting root-cap and a pin which fits the root canal with almost equal exactness, a hole is drilled through the cap, through which the pin is made to pass, and an impression taken which gives their exact relation.

Now, how shall the cap and pin be united? We are all familiar with the complication of soldering with pure gold, and gold and platinum alloy, and perhaps one reason for the tardy development of perfect porcelain crown and bridgework and continuous gum lies in the difficulties encountered in complicated cases of soldering. I believe these difficulties are practically overcome through the system which I now have the pleasure of publicly describing for the first time. I have succeeded in making a pure gold paste, which contains only the minimum of flux and some acid, and which is held together by a binding material. This paste stays where it is put and melts with a thoroughness unknown to the former method. It can be made to bridge over considerable gaps. It relieves from the necessity of guiding with a platinum point held in the left hand. It may be so completely united with the platinum iridium that the highest fusing porcelain can be subsequently melted upon it without danger of "volatilisation" and it may be carried unfailingly into most obscure corners. There is no waste of material nor any point of weakness from aggregation of that undesirable quantity of gold which, under the old system, would now and then occur, even with the most skilful. The method is, of course, applicable to all forms of soldering, but as the constituents have to be varied with every form of alloy, the necessary formulæ have not yet been completely worked out, except for pure gold.

Having in place the exactly fitting cap, and the nearly exactly fitting pin, united by exact and indissoluble soldering, the bite is taken and an exact model made.

Now comes the selection of the form and colour of the crown or facing. With such facilities as we have at our command there is absolutely no excuse for failure to produce a restoration, perfect in form and colour. It is simply a question of taking pains. Either in the case of a simple crown, or in that of the most complicated piece of bridge work, all traces of artificiality can be and must be concealed, and when the crown or facing has been ground to place, it should be attached to its position by soldering to the 30 per cent, platinum iridium pin which extends through the cap for this purpose. Then comes the building out, to complete symmetry of form, with porcelain, by means of which the piece is also enormously strengthened.

Here, then, we have a crown which fits the root with the perfection of an inlay; the countersunk cap, strengthened by the unyielding pin, going exactly into place, with no deviation whatever. There is no danger that the tooth will twist upon its axis in setting or assume any other position than that to which it has been fitted. Slowly but surely, with only slight excess of cement, it is put into place, and stands, when completed, unexampled in strength and usefulness, in cleanliness and beauty.

So absolutely is disaster excluded by this system that I never hestitate to sacrifice a disfigured crown, even for æsthetic purposes alone, nor for a moment question the removal of a crown to make a porcelain bridge practicable.—*British Dental Journal.*

THE ADVANTAGES OF ALL-CARVED BANDLESS CROWN IN A SHORT BITE.

T. H. McClure, Chicago.

In the general construction of such a crown as the title of this paper indicates, I have very little which is new to offer. I wish to speak more at length on the details and mainly of bicuspids.

One of the advantages is gained in the first step of the operation, the root preparation. I shape the end of the root very convex, so as to have the greatest possible thickness of porcelain in the finished crown. This is best accomplished with a knife-edged carborundum stone, which is slightly worn. The margins need be very little under the gum, thereby causing no disturbance of the gingivi. If you study this preparation closely you will find the crown supported in such a way that a fracture of the root is hardly possible.

The next step is the fitting of the posts. I say posts, because it is very necessary to have more than one post. The shape of a bicuspid root will always permit of two, even though one is merely a stub. I enlarge the canals with round burs, beginning with very small and gradually using larger until the desired size is obtained. In this way there is little danger of puncturing the walls.

The posts should be shaped so as to extend into each cusp of the finished crown. In this way advantage is taken of the extra thickness in those parts and the porcelain is weakened the least by such an arrangement.

In selecting material for the posts 18-gauge iridio-platinum is heavy enough; smaller would do if the case in hand called for it. A rocking movement is impossible with the two attachments, so that heavy posts are of no advantage, the object being to have the least possible amount of metal in the porcelain.

For the plate over the end of the root I use 36-gauge platinum, fitting directly on the root. A smooth-faced plugger-point with a notch through the center will be a great help in swaging, using the notched part for the margins. This part of the operation must be done with just as much care as in preparing a matrix for an inlay.

I cut a piece of platinum plate a little larger than the root, and, after annealing thoroughly, place it over the end of the root, and burnish the center sufficient to give some indication of the location of the canals. Then I take a sharp-pointed instrument, and while the plate is still in place on the root punch holes for the posts. A broken excavator tapered to a point is good for this purpose, gauging the size of the hole by the depth of the insertion.

Next I force the posts to place, fasten the plate with hard wax and remove. I invest in investing material and, in order to save time, mix very stiff and place over a Bunsen flame at once. In this way the soldering can be done in about five minutes. I now replace on the root and finish fitting; next I take a plaster impression and wax bite. Before pouring I flow wax over the posts so that they can be withdrawn from the model. After mounting on articulator, the case is ready for the porcelain.

Mixing the porcelain with a saturated solution of gum tragacanth stiffens the mass and makes it less liable to fracture. If the case requires little or no shading at the neck, I make the sides quite slanting, forming almost a cone, so that the enamel body, when applied, will almost or entirely conceal the shade of the foundation body.

If the case requires a marked shading at the neck I make the sides almost at a right angle, allowing for a very little covering of enamel body. You will find, by this method, a beautiful shading out can be produced, starting with a very thin coating of enamel body at the neck and gradually thickening as you approach the cusps.

After baking this section I add the enamel body, making the mass a little larger than the finished piece requires to allow for shrinkage.

Another great advantage in this style of crown is the ease with which a little can be taken off here or added there, so that the buckling up to the adjoining teeth can be made absolutely perfect. To produce such results it is almost necessary to make some changes during the final fitting in the mouth. After the final baking I peel off the platinum plate so that, when the crown is cemented in place, the joint is as perfect and as sightly as that of an inlay. It is really carrying out the inlay principle in crown work.

With practice and care in each step of the operation you have in the finished piece a near approach to an ideal crown and a step toward a higher art in dentistry. Someone asks, "Why go to so much trouble, when crowns can be had at the supply houses?" Why have a tailor make your spring suit? Suits can be had on the bargain counter. If the bargain counter suit is a disappointment, it is cast aside at the end of the season and forgotten. The unsightly crown is with you always, and a disappointment forever.—*The Bur.*

COMBINATION GOLD AND PORCELAIN INLAYS.

Dr. Dory, Morrisburg, Ont.

One of the many conditions which meet the dentist, frequently demanding better attention, I propose to treat in the manner mentioned in the title of this paper.

The three words, What, Why and How, will cover the question.

1. *What Conditions.*—Centrals, laterals or cuspids with one-half to one-third or less of the incisal edge gone and a large proximal cavity. These generally resolve themselves into a large Johnston filling, a gold filling built with a post in the root, or a porcelain inlay anchored by means of a post, each one having its disadvantages. The gold lacks in aesthetic qualities and the porcelain in strength, and all lack strength when the incisal edge is very thin.

The other condition I wish to mention is in anterior proximo occlusal fillings in the bicuspids and first molars. Here often gold is very conspicious, and there is a chance for doubt in regard to porcelain.

2. Why are combination gold and porcelain inlays indicated

in these conditions? Because they combine the maximum of strength with approximately the maximum of aesthetic effect.

3. *How Inserted.*—In anterior teeth the root canals must be treated and filled "according to Hoyle," the cavities well cleared of decay, and all thin enamel removed. The incisal edges may be well cut back till we are sure we have reached firm well-supported enamel, and then to make absolutely sure, take a little more with this kind of filling, a little less tooth substance, and a little more filling will not endanger the permanance of the work or make the tooth unsightly.

The root canal must now be enlarged sufficiently to allow the easy insertion of a post. This enlargement should be made laterally towards the mesial or distal depending on which proximal surface of the tooth the filling is to be inserted. This is necessary, both for the removal of matrix and insertion of the inlay. After this has been done, the matrix, of pure gold, must be burnished into place, breaking it as little as possible. If the matrix does become punctured, use a small piece of gold the same thickness as matrix, puncture it with your post, wrapping it in cone shape around the post, and insert this in the root canal, and with your burnishers spread your cone till it comes in contact with the walls of the cavity, and covers your puncture in the original matrix.

Now pack into your matrix a combination of paraffin and camphor, which you have ground up in a mortar, and keep for swaging and removing matrices. Remove all together and invest, filling the matrix flush with solder.

This may now be returned to the cavity and the tooth restored with cement, giving the proper contact and contour. Remove and carve to allow for the thickness of gold, as in making a box inlay. Take the impression by imbedding in dental lac, and swage. Now remove cement, and solder corner to original matrix; cut out the labial surface partially, and make the inlay a solid one by filling with solder.

At this stage insert the filling, which is a completed gold inlay. If the contact point or any portion of the inlay be imperfect, add a little gold solder at that point. Trim the inlay ready for insertion, and with a fissure bur cut out the labial surface from the gingivo labio proximal angle to the incisal proximal angle, cutting it well over the proximo labial curve. Along the incisal edge leave a small portion of the gold showing as a protection for your porcelain inlay.

Cement the gold inlay in the cavity, and allow the cement to harden well. Then proceed to burnish your matrix for a porcelain filling in the labial cavity which now presents itself. Bake the porcelain inlay and insert.

We now have a filling with the greatest possible amount of strength, being completely supported with gold where any strain comes upon it, and, as I said, approximating the greatest aesthetic effect, as it shows only a minimum of gold along the incisal edge.

To be brief with the second condition, make a solid gold inlay for your bicuspid or molar; cut out this inlay along the buccal wall of the cavity from the gingival near the point where any stress of mastication will come. The cut-out need be extended lingually only till it passes the point of vision. A porcelain inlay is now made and inserted.

This method of dealing with these cavities I believe to be an ideal one.—*Dominion Dental Journal.*

THE NECESSITY OF PROPER FORM TO FINISHED OPERATIONS.

I. T. Wallace, Canton, Mo.

By failing to give the finished operation the proper form one converts what should be a clean, healthy and comfortable tissue into one prone to collect and afford a lodging place for food particles and secretions, which in turn are decomposed by the action of bacteria within the mouth, thus creating filth and disease. Frequently, instead of producing normal, we create abnormal conditions, thus destroying both the hard and soft tissues. These results are daily being presented to us in our practice. It is lamentable that so many fellow-practitioners are making their operations regardless of the consequences that must follow, due wholly to the improper form given to the finished work.

In a properly formed filling there are four points to be attained: the preservation of the full mesio-distal diameter of the tooth, a correct form of the proximal surface, a correct form of the interproximal contact; and the health of the gum septum.

These points should not only be given to gold and amalgam fillings, but to gold or porcelain inlays ,as well as to all crowns. for the comfort and utility of each are alike dependent upon the form given. Upon this form we must depend to restore all parts to normal conditions of health and utility. In most cases, if we restore the original form of the tooth it will accomplish ideal results, but it frequently occurs that the original form does not accomplish any or all of the points mentioned. In those cases a form should be given to the filling that will accomplish it. In order to restore normal conditions (for our operations are always upon abnormal conditions when the tooth is decayed) we must first of all secure ample separation, that the full contour of the tooth may be restored in the finished filling. We should have a well-rounded contact, so that it will touch the proximating tooth only at a small, rounded point, and this should be sufficiently prominent to restore the original tooth form, thus giving a proper contour to the interproximal space. This cannot be accomplished unless sufficient space has been obtained to fully restore the original mesio-distal diameter of the tooth. If we fail to restore the mesio-distal diameter of the tooth in making a filling in the proximal surface, the two teeth soon move closer together under the force of the inclines of the occluding teeth. This narrows the interproximal space impinging upon the gum septum, thus causing its absorption to a greater or less extent. The interproximal space being narrowed, and the gum septum being partially absorbed, it will afford a place for the lodgment of food particles in a position difficult to cleanse; also, because of the narrowed proximal space caused by the teeth falling closer together, the lingual and buccal embrasures are shortened. This in time prevents the free excursion of food through them in the process of mastication. This increases the area of susceptibility, both lingually and buccally, and necessitates cutting the cavity broader in order to place the margins beyond the danger line of recurrent decay.

If we fail to secure ample separation for the restoration of the tooth, the contact is of necessity broad and flat, on account of the lack of space in which to bring the proximal surface of the filling up to a well-rounded contact point. If the contact is broad and flat it greatly increases the difficulty of maintaining cleanliness. Stringy food having a tendency to cling in all interproximal spaces, and especially so where the points of contact are broad and flat, it packs in such spaces and is forced upon the gum tissues and often produces intense pain and causes the absorption of the gum tissues or forms a pocket where debris may collect and decompose. Such a condition creates decay of the tooth, if not disease of the peridental membrane, often resulting in the loss of the tooth itself.

If we fail to gain sufficient separation to restore the original mesio-distal diameter of the tooth, we are unable to give the finished filling the proper form. All proximal surfaces should be nicely polished to an oval form linguo-buccally—not rounded too full, for if rounded out well they occupy the interproximal space intended by nature for the gum septum. They should also be trimmed from the gingival margin to the contact point, bringing them up to a sharp, round point where the filling comes in contact with the adjoining tooth, similar to that of two marbles coming in contact with each other.

If the separation has been sufficient and the cavity so prepared that the buccal and lingual margins are placed where they will be self-cleansing, the filling may be trimmed from the contact point to the cavity margins, producing broad buccal and lingual embrasures, which will invite the passage of food particles through them, thus securing the greatest possible area of self-cleansing surface. These conditions, according to nature's own methods, very largely tend to prevent the recurrence of decay by increasing cleanliness through the ordinary process of mastication. Should we fail to secure separation, our proximal surface must, for want of space to trim the filling to form, be very broad and flat, thus preventing the contouring of the proximal surface and shortening the embrasures so much that should our cavity margin be extended to where we would ordinarily consider them self-cleansing, the particles of food could not pass over them in the process of mastication and accomplish the results they would if ample separation had been obtained, in such cases, if we wish to secure the greatest degree of permanency in our operations, we must extend our cavity margins farther lingually and buccally, thus making a needless sacrifice of energy and tooth structure on account of not having secured sufficient separation before attempting to make the operation.—*Dental Era.*

SOCIETY

EASTERN INDIANA DENTAL ASSOCIATION.

The Eastern Indiana Dental Association meets in Anderson, May 14th and 15th. Good clinics. Good papers. Everybody invited. Everybody who comes is a member.

INDIANA STATE DENTAL ASSOCIATION.

The forty-ninth annual meeting of the Indiana State Dental Association will be held at the Claypool hotel, Indianapolis, June 11, 12, 13, '07. The executive committee has arranged an unusually interesting program for this meeting. A cordial invitation is extended to the profession to be present.

CARL D. LUCAS, Sec'y,
Indianapolis.

WEST VIRGINIA STATE BOARD OF DENTAL EXAMINERS.

The West Virginia State Board of Dental Examiners will hold their next meeting for the examination of candidates at Wheeling, W. Va., June 12, 13 and 14, 1907. For further information address

H. M. VAN VOORHIS, Sec'y,
Morgantown, W. Va.

ODONTOTECHNIQUE SOCIETY OF NEW JERSEY.

The Odontotechnique Society of New Jersey will hold their regular monthly meeting and banquet at Achtelstetter's, Newark, on Saturday evening, May 4th, at which a paper will be read by D. A. Webb, M. D., of Scranton, Pa.; subject, "Diseases of the Jaws, Malignant Growths, Fractures, Etc." Dr. Webb is president of the Scranton Clinical and Pathological Society, and the paper promises to be one of unusual interest to the profession.

NORTHERN OHIO DENTAL ASSOCIATION.

Next annual meeting will be held in Cleveland the first week in June.

ILLINOIS STATE DENTAL SOCIETY.

The forty-third annual meeting of the Illinois State Dental Society will be held at Quincy on Tuesday, Wednesday, Thursday and Friday, May 14, 15, 16 and 17, 1907.

ARTHUR D. BLACK, Sec'y,
31 Washington St. Chicago.

MISSISSIPPI DENTAL ASSOCIATION CHANGE OF DATE.

As the date of the next meeting of our Association has been changed on account of the conflicting dates of this and the Examining Board, the dates will be May 28, 29 and 30, 1907.

E. DOUGLAS HOOD, Sec'y,
Missisippi Dental Ass'n.

REUNION UNIVERSITY OF PENNSYLVANIA DENTAL DEPARTMENT, CLASS OF 1902.

The fifth annual reunion of the class of 1902, dental department of the University of Pennsylvania, will be held on Alumni day, Saturday, June 15, 1907.

All are earnestly requested to make an effort to come back to their Alma Mater on that day.

J. ARTHUR STANDEN, Sec'y,
1220 Locust St. Philadelphia, Pa.

INDIANA STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Indiana State Board of Dental Examiners will be held in the capitol at Indianapolis, June 11, 12 and 13, 1907. All applicants for examination to practice in the state should apply to the secretary for further information, blanks, etc. Applications for examination must be in the hands of the secretary at least five days before the above date.

F. R. HENSHAW, Sec'y,
Middletown, Indiana.

MISSOURI STATE DENTAL ASSOCIATION.

The next annual meeting of the Missouri State Dental Association will convene in Kansas City, Mo., June 4, 5 and 6, 1907.

A most interesting and profitable meeting is anticipated.

All ethical members of the profession are cordially invited to attend.

F. G. WORTHLEY, President,
Kansas City.
E. P. DAMERON, Cor. Sec'y,
St. Louis.

THE N. D. A. CLINIC.

There is every indication that there will be a large clinic held in Minneapolis on July 31st and August 1st.

Many men have signified their intention to be present and take part in either the operative work, or else give some kind of a table clinic. If I am to judge from what has been written to me, then, I feel certain that we shall have a most interesting meeting so far as the clinic is concerned.

In the past there has been some criticism regarding the clinic room being so far away from the headquarters. In no sense of the word is the clinic committee to be blamed for this condition of affairs. It must take what is offered or else not have clinical demonstrations. Now, this year there is every assurance that this condition will be materially changed. Dr. F. B. Kremer, the chairman of the local committee of arrangements, is a man of much experience in dental society work. Therefore, he is the very man for the place. He knows what is desired, and, beyond question, he will secure a hall for the clinic room in close proximity to the headquarters. This year, at least, those contemplating being with us need not worry about this special part of the meeting, for Dr. Kremer is a man who does not neglect anything.

From reports which are constantly being received there is every reason to believe that we shall hold a most successful clinic.

The following gentlemen are acting as district and state chairmen:

For the New England States, Dr. G. E. Savage, Worcester, Mass.

New York, Dr. F. L. Fossume, New York.

New Jersey, Delaware and District of Columbia, Dr. M. F. Finley, Washington, D. C.

Maryland, Dr. C. N. Ginrich, Baltimore, Md.

Virginia and West Virginia, Dr. F. W. Stiff, Richmond, Va.

North and South Carolina and Georgia, Dr. H. H. Johnson, Macon, Ga.

Florida, Alabama and Mississippi, Dr. A. T. Reeves, Selma, Ala.

Tennessee and Kentucky, Dr. W. M. Slack, Memphis, Tenn.

Pennsylvania, Dr. H. E. Friesell, Pittsburg.

Ohio, Dr. H. C. Brown, Columbus.

Indiana, Dr. C. D. Lucas, Indianapolis.
Illinois, Dr. F. W. Gethro, Chicago.
Wisconsin, Dr. S. H. Chase, Madison.
Manitoba, Dr. K. C. Campbell, Winnepeg.

It is not an easy matter to arrange the program and I shall be grateful to all the chairmen for their list of clinicians. The earlier the list is sent the better.

N. Y. Life Bldg.
St. Paul, Minn.

E. K. WEDELSTAEDT.
Chairman, Clinic Section.

PROGRAM OF THE AMERICAN MEDICAL ASSOCIATION, SECTION ON STOMATOLOGY.

FOR THE MEETING AT ATLANTIC CITY, JUNE 4-7, 1907.

1. Chairman's Address................M. I. Schamberg, New York City
2. The Necessity of a Medical Education for Dentists..............
   (a) From the Standpoint of the Lay Public:
   M. L. Rhein, New York City.
   H. C. Register, Philadelphia.
   James McManus, Hartford, Conn.

   (b) From the Standpoint of the Physician:
   V. A. Latham, Chicago.
3. The Common Ground of Dentistry and Medicine..S. L. Fossume, New York City
4. The Mutual Developmental Dependence of the Upper Air Tract, the Jaws, the Teeth, the Face and Their Economic Importance to the Human Race...............W. Sohier Bryant, New York City
5. The Relation of Upper Respiratory Obstruction to Oral Deformity; Simultaneous Treatment by Expansion of the Dental Arch ....Francis A. Faught, Philadelphia
6. Speech Results of Cleft Palate Operations...George V. I. Brown, Milwaukee
7. Technique of Lip and Palate Operations...Thomas Fillebrown, Boston
8. False Statements Concerning Causes of Pathological Conditions...S. B. Luckie, Chester, Penn.
9. Acid Auto-intoxication, the Principal Cause of Erosion and Abrasion ....Eugene S. Talbot, Chicago
10. Some Results from Orthodontia on the Deciduous Teeth..E. A. Bogue, New York City
11. Osteo-myelitis of the Maxilla..Samuel L. Goldsmith, New York City
12. A Case of Epidermoid Carcinoma of the Inferior Maxilla...W. H. Potter, Boston

13. Pregnancy: A Factor in the Etiology of Dental Diseases........ ....James E. Power, Providence, R. I.
14. The Dentist in the United States Navy...................... ....Richard Grady, Annapolis
15. The X-Ray an Aid to the Stomatologist.....R. G. Richter, Milwaukee
16. Radiography in Oral Surgery, with Demonstrations of a Focus Finder and Ray Localizer..............G. E. Pfahler, Philadelphia

M. I. SCHAMBERG, Chairman.
EUGENE S. TALBOT, Secretary.

JAMESTOWN EXPOSITION, NORFOLK, VA., 1907—THE JAMESTOWN DENTAL CONVENTION, NORFOLK, VA., SEPTEMBER 10-12, 1907.

COMMITTEE ON ORGANIZATION.

Burton Lee Thorpe, Chairman,
St. Louis, Mo.
R. H. Walker,
Norfolk, Va.
Thos. P. Hinman,
Atlanta, Ga.
Clarence J. Grieves,
Baltimore, Md.

H. Wood Campbell, Secretary,
Suffolk, Va.
F. W. Stiff, Treasurer,
Richmond, Va.
J. E. Chace,
Ocala, Fla.

The Jamestown dental convention will be held in an especially equipped building on the Exposition grounds, which was built for the purpose of accommodating this convention; the building is equipped with an auditorium, committee rooms, and excellent facilities for conducting dental clinics and for holding exhibits. All of these will be held in this building. The entrance to the building is outside of the grounds; however, one may obtain access to the grounds through it. The building is wired with both direct and alternating current, equipped with running water, well lighted, and contains all modern conveniences, thus making it an ideal convention hall. The exhibits are under the management of Dr. John W. Manning, Bank of Commerce Bldg., Norfolk, Virginia. To him exhibitors should apply at once for space. Price per foot and a plat of the hall will be sent upon request. The clinics are under the supervision and direct control of Dr. C. J. Grieves, Park and Madison avenues, Baltimore, Md. His assistants are Drs. Baskerville Bridgeforth, Richmond, Va.; E. J. Tucker, Roxboro, N. C.; Herbert Johnson, Macon, Ga.; F. A. Bowles, Washington, D. C., and Joseph T. Meadors, Nashville, Tenn. The prospects are that the Jamestown clinic will be the largest and most complete dental clinic ever held. Assistants clinic chairmen have been appointed in each state in the Union and nearby countries, viz.: Canada, Mexico, Cuba and Hawaii.

From these come reports of the enlistment of the best clinic talent in their respective states and countries.

Membership chairmen have been appointed in the various states and countries. Names of these and the clinic chairmen will appear with the list of other officers in this issue of this journal. The membership committee is headed by Dr. F. W. Stiff, the general chairman, 600 East Grace street, Richmond, Va., who already reports memberships rapidly coming in. The hotel headquarters will be at the Inside Inn, where reasonable rates and excellent accommodations are assured. The Inside Inn generously offers numerous halls and committee rooms free of charge to the various college fraternities and alumni, who are invited to hold their meetings in these rooms. Later reports as to hotel accommodations and prices will appear in a subsequent issue of this journal. The membership fee is five dollars, which will entitle members to a bound copy of the proceedings. A half rate of $2.50 is made to bona fide dental students upon certificates from the deans of their colleges, and when presented to the state chairman of the membership committee, for endorsement and acceptance, will entitle them to the rights and privileges of the convention. The essayists are to be Prof. W. D. Miller, of Berlin, Germany; Dr. F. T. Van Woert, Brooklyn, N. Y., whose subject is, "Is the Cemented Filling the Filling of the Future?" Dr. Chas. L. Alexander, of Charlotte, N. C., who will present a paper on "Gold Inlay". The other essayists will be announced later. Dr. E. P. Beadles was elected by the committee on organization, in February, to go to Europe and extend a cordial invitation to the dental societies and individual dentists to attend the convention. The following officers were elected by the committee on organization at its recent meeting, February 23, 1907:

Honorary president—Dr. J. Y. Crawford, Nashville, Tenn.
President—Dr. V. E. Turner, Raleigh, N. C.
First vice-president—Dr. B. Holly Smith, Baltimore, Md.
Secretary-General—Dr. Geo. F. Keesee, Richmond, Va.
Treasurer—Dr. Mark F. Finley, Washington, D. C.

VICE-PRESIDENTS.

Dr. W. G. Mason, Tampa, Fla.; Dr. A. C. McCurdy, Towson, Md.; Dr. Edward Eggleston, Richmond, Va.; Dr. D. N. Rust, Washington, D. C.; Geo. W. Boynton, Washington, D. C.; Dr. J. R. Osborne, Shelby, N. C.; Dr. S. H. Johns, Wilmington, Del., cor. 9th and Van Buren streets; Dr. Max M. Eble, Louisville, Ky.; Dr. Chas. L. Gunn, Gadsden, Ala.; Dr. R. W. Quarles, Van Buren, Ark.; Dr. Wm. Crenshaw, Atlanta, Ga.; Dr. S. F. Kemp, Key West, Fla.; Dr. A. A. McClanahan, Springfield, Tenn.; Dr. J. H. E. Milhous, Blackville, S. C.; Dr. L. B. McLaurin, Mississippi; Dr. F. A. Blanchard, Marksville, La.; Dr. R. D. Griffis, Paris, Texas; Dr. J. D. Patterson, Kansas City, Mo.; D. O. M. LeCron, St. Louis, Mo.; Dr. J. A. Hall, Collinsville, Ala.; Dr. T. M. Milam, Little Rock, Ark.; Dr. W. E. Norris, Charlottesville, Va.; Dr. Wm. M. Bebb, Los Angeles, Cal.; Dr. Garrett Newkirk, Pasadena, Cal.; Dr. James McManus, Hartford, Conn.; Dr. W. W. Evans, Washington, D. C.; Dr. L. C. Elkins, St. Augustine, Fla.; Dr. H. H. Johnson, Macon, Ga.; Dr. Geo. Edmond Hunt, Indianapolis, Ind.; Dr. G. V. Black, Chicago, Ill.; Dr. T. W. Brophy, Chicago, Ill.; Dr. A. H. Peck, Chicago, Ill.; Dr. C. M. Work, Ottoumwa, Kas.; Dr. Alton H. Thompson, Topeka, Kas.; Dr. John E. Woodard, New Orleans, La.; Dr. R. R. Andrews, Cambridge, Mass.; Dr. W. E. Boardman, Boston, Mass.; Dr. Geo. L. Field, Detroit, Mich.; Dr. E. K. Wedlestadt, St. Paul, Minn.; Dr. A. C. Searl, Onatonna, Minn.; Dr. T. M. Hampton, Helena, Mont.; Dr. Geo. Longway, Great Falls, Mont.; Dr. H. F. King, Fremont, N. H.; Dr. Edwin C. Blasdell, Portsmouth, N. H.; Dr. Chas. A. Meeker, Newark, N. J.; Dr. R. M. Sanger, Orange, N. J.; Dr. H. J. Burkhart, Batavia, N. Y.; Dr. Ottolengui, New York, N. Y.; Dr. Wm. Carr, New York, N. Y.; Dr. Geo. H. Wilson, Cleveland, O.; Dr. L. C. Custer, Dayton, O.; Dr. Norris R. Cox, Portland, Ore.; Dr. Arthur W. Chance, Portland, Ore.; Dr. Edward C. Kirk, Philadelphia, Pa.; Dr. Wilber F. Litch, Philadelphia, Pa.; Dr. Edwin T. Darby, Philadelphia, Pa.; Dr. H. C. Register, 1907 Chestnut street, Philadelphia, Pa.; Dr. T. T. Moore, Columbia, S. C.; Dr. T. T. McClanahan, Nashville, Tenn.; Dr. L. G. Noel, Nashville, Tenn.; Dr. Pitt S. Turner, Belton, Texas; Dr. John W. David, Corsicana, Texas; Dr. W. Leon Ellerbeck, Salt Lake City, Utah; Dr. W. G. Dalyrymple, Ogden, Mo.; Dr. Chas. F. Irwin, Van Couver, Wash.; Dr. G. V. I. Brown, Milwaukee, Wis.; Dr. W. A. Cudworth, Milwaukee, Wis.; Dr. A. J. Derby, Hawaii, Honolulu; Dr. Andres G. Weber, Havana, Cuba, Corelas, 1 Esq-aEgido; Dr. J. Falero, 18 Tacuba, City of Mexico, Mexico; Dr. Ricardo Figueroa, 1 Call de Santo Domingo, No. 8, City of Mexico, Mexico.

GENERAL CLINIC COMMITTEE

Clarence J. Grieves, chairman, Park and Madison avenues, Baltimore, Md.
Baskerville Bridgeforth, Richmond, Va.
E. J .Tucker, Roxboro, N. C.
H. Herbert Johnson, Macon, Ga.
F. A. Bowles, Washington, D. C.
Joseph T. Meadors, 625 1-1 Church street, Nashville, Tenn.

. STATE CHAIRMAN OF CLINICS.

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Florida—Carroll H. Frink, Fernandina.
Georgia—A. M. Jackson, Macon.

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North Carolina—J. A. Gorman, Asheville.
North Dakota—C. L. Rose, Fargo.
Ohio—H. C. Brown, 185 E. State street, Columbus.
Oklahoma—Theodore P. Bringhurst, Shawnee.
Oregon—Arthur W. Chance, DcKum Bldg., Portland.
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Rhode Island—Dennis F. Keefe, 315 Butler Exchange, Providence.
South Carolina—Thomas T. Moore, Jr., Columbia.
South Dakota—E. S. O'Neil, Canton.
Tennessee—A. J. Cottrel, Knoxville.
Texas—John W. David, Corsicana.
Utah—William Leon Ellerbeck, 21 Hooper Bldg., Salt Lake City.
Vermont—E. O. Blanchard, Randolph.
Virginia—R. L. Simpson, Richmond.
Washington—C. A. Custer, Chapin Block, Seattle.
West Virginia—F. L. Wright, Wheeling.
Wisconsin—W. A. Cudworth, Milwaukee.
Mexico—J. Falero, 18 Tacuba, City of Mexico.
Cuba—Andres G. Weber, Corelas, 1 Esq. aEgido, Havana.
Hawaii—A. J. Derby, Honolulu.

GENERAL MEMBERSHIP COMMITTEE.

F. W. Stiff, chairman, 600 East Grace street, Richmond.
A. S. Melindy, Knoxville, Tenn.
William Crenshaw, Atlanta, Ga.
M. S. Merchant, Houston, Texas, Mason Bldg.

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Idaho—J. H. Lewis, Nez Perce.
Illinois—Frederick B. Noyes, Stewart Bldg., Chicago.
Indiana—Frederick R. Henshaw, Middletown.
Indian Territory—J. M. Staples, Atoka.
Iowa—F. T. Breene, Iowa City.
Kansas—F. G. Corey, Council Grove.
Kentucky—A. B. Dixion, Glasgow.
Louisiana—G. Victor Vinges, Macheca Bldg., New Orleans.
Maine—Will S. Payson, Castine.
Maryland—W. G. Foster, 9 West Franklin street, Baltimore.
Massachusetts—Waldo E. Boardman, 419 Boyleston street, Boston.
Michigan—Albert L. Le Gro, 271 Woodward avenue, Detroit.
Minnesota—James Elmer Weirick, St. Paul.
Mississippi—A. E. Tillman, Vicksburg.
Missouri—D. O. M. LeCron, Mo. Trust Bldg., St. Louis.
Montana—T. M. Hampton, Helena.
New Jersey—Alphonse Irwin, Camden.
Nebraska—E. H. Bruening, Omaha.
New Hampshire—H. P. Baldwin, Manchester.
New York—H. Clay Ferris, 1166 Dean street, Brooklyn.
North Carolina—C. A. Bland, Charlotte.
Ohio—L. P. Bethel, 185 E. State street, Columbus.
Oklahoma—G. L. White, Oklahoma City.
Oregon—George H. Nottage, Portland.
Pennsylvania—Howard E. Roberts, 1517 Locust street, Philadelphia.
Rhode Island—Albert L. Midgley, 312 Butler Exchange, Providence.
South Carolina—L. P. Dotterer, Charleston.
South Dakota—G. S. Collins, Vermilion.
Tennessee—Justin D. Towner, Memphis.
Texas—Rufus W. Carroll, Beaumont.
Utah—W. G. Dalyrymple, Ogden.
Vermont—K. L. Cleaves, Montpelier.
Virginia—Wm. Pilcher, Petersburg.
Washington—F. J. Shaw, Seattle, Burk Block.
Wisconsin—W. H. Mueller, Madison.
Mexico—Ricardo Figueroa, 1 Calle de Santo Domingo, No. 8, City of Mexico.

Canada—Theodore C. Trigger, St. Thomas, Ontario.
Hawaii—E. L. Hutchinson, Honolulu.
West Virginia—Chas. H. Bartlett, Parkersburg.

KANSAS STATE BOARD OF DENTAL EXAMINERS.

The Kansas State Board of Dental Examiners will hold their next meeting for examination in Topeka, May 22, 23, 24 and 25, 1907, at the Copeland hotel annex.

The examination fee is $25 and an additional fee of $5 for a license.

Examination is not necessary for a graduate of a reputable dental college. The fee for registering a diploma is $25.

Address all communications to

F. O. HETRICK, Sec'y,
Ottawa, Kansas.

SOUTH DAKOTA DENTAL SOCIETY.

The 25th annual meeting of the S. D. Dental Society will be held in Sioux Falls, June 4, 5, 6.

A most interesting program has been arranged, and we want to see the largest attendance the society has ever had. A larger membership is desired, and every dentist in the state, who is eligible, should become a member.

A special invitation is extended to southeastern Minnesota and northwestern Iowa dentists to attend.

FERDINAND BROWN, Sec'y,
Sioux Falls.

OHIO STATE BOARD OF DENTAL EXAMINERS.

The regular semi-annual meeting of the Board of Dental Examiners of the State of Ohio will be held in Columbus, June 25, 26 and 27, 1907.

Only graduates are eligible to examination.

Application, accompanied by fee ($20.00) should be filed with the secretary by June 15th. For further information address

H. C. BROWN, Sec'y,
185 E. State St.
Columbus, Ohio.

AFTERMATH

Robberies.—Drs. Gill and Bow, of Louisville, Ky., were robbed March 21 of gold worth $225, which was in the shape of bridges, fillings and crowns.

Will Specialize.—Dr. Samuel P. Cameron announces that his practice in the future will be limited to orthodontia exclusively. 1516 Locust St., Philadelphia, Pa.

Dentist Leaves Profession to Become a Banker.—Dr. C. B. Hess, Atlantic, Iowa, who has practiced dentistry nine years, has sold his practice to enter the banking business.

Dentist Is Badly Hurt.—By the explosion of a vulcanizer which he was tightening, Dr. Adolph Olson, of Duluth, Minn., received injuries from which he will be disfigured for life, and he may lose the sight of his right eye.

A Half Hour's Rest in a Dental Chair.—After returning from a half hour's visit to the dentist, according to a press dispatch, President Roosevelt declared he had never felt better. Such a good chance to rest from the strenuous life for a few moments.

Syracuse (N. Y.), Dental Club.—The Dr. E. K. Wedelstaedt Dental Club held their first annual banquet at the Heidelberg Club March 8, and elected these officers: President, Dr. John T. Hall; vice-president, Dr. John C. Benz; secretary-treasurer, Dr. George T. Head.

Destroyed by Fire.—Dr. Charles Mehler, Ambler, Penn., suffered a loss of $800 by fire in his dental office, April 6th. Dr. Young, Columbus, O., lost his office contents by fire April 9th. Loss about $800. Insurance, $600. A. C. Clark & Co.'s dental supply house, Chicago, was damaged to the extent of $1,000 by fire, March 17th.

Accidentally Shot.—Dr. J. A. Schleuter, a prominent dentist of Aberdeen, S. Dakota, accidentally shot himself while hunting near Hecla, March 26. The accident happened while getting into a boat, the charge entering his right side. Dr. Johnson, who was with him, stopped the flow of blood, but the injured man lived only about three hours.

Dentist-Author to Circle the Globe.—August Seymore, a dentist who has been living in Kansas City for some time, is on his way around the world. Seymore, who is a native of Denmark, claims to have twice girdled the globe in the accumulation of data for books which he wrote. When his third journey around the earth is completed he will publish another edition, he says.

Marriages.—Dr. Nathan B. Custer, Dayton, O., and Miss Ella P. Ramsey, Dayton. Dr. Lewis F. Knight, Glasco, Kansas, was married March 21 to Miss Emma Vaughn, Simpson, Kansas. Dr. Josephus W. Coyner and Mrs. Charlotte R. Woodward were married in Los Angeles, Cal., March 20. Dr. Frank Deitch, St. Joseph, Michigan, was united in marriage to Miss Anna White, April 9.

Deaths.—Dr. J. C. Orwig, Herndon, Pa., died March 5, from internal injuries, aged 59 years. Dr. Eugene J. Hansle, Buffalo, N. Y., died March 13. Dr. Thomas J. Borland, Milwaukee, Wis., died March 16, aged 42 years. Dr. Isaac Strickland, Bangor, Me., died March 20, aged 76 years. Dr. Frank C. Wick, St. Louis, Mo., died March 24 of heart disease, aged 30 years. Dr. C. T. Brockett, Jr., Atlanta, Ga., died April 4.

Must Pay Prince's Dentist.—A verdict of $228 against Prince and Princess Nicholas Engalitcheff and in favor of Lee K. Stewart, a dentist, was returned by a jury in Judge Gibbons' court, recently, in Chicago. The amount is for dental work done several years ago for the prince. Attorney E. E. Gray, for the defendant, made a motion for a new trial, arguing that the dentist should not have brought suit against the prince's wife. Dr. Stewart, in testifying, said that he began suit against the princess because he learned that she was head of the household.

Dentist Is Robbed on Street Car.—Dr. Walter A. Borden, a dentist in Germantown, Pa., was robbed of $307 and a check of $3 by pickpockets, March 7, while aboard a street car. He did not miss the money nor the check until he reached a down-town theater. After committing the theft, the pickpockets considerately dropped the check into a mail box, and it has been returned to Dr. Borden.

Must Take Examination.—Evan B. Rosenkrans must take the examination before the State Board of Registration in Dentistry, as prescribed by the statutes, before he will be allowed to practice dentistry in Rhode Island, so it is held by a rescript handed down in the supreme court, March 15. The petitioner claimed that he had certificates from two states that he had practiced dentistry 25 years, and that he instructed a former member of the Board in the practice of the profession.

At a Dentist's Grave.—

A worthy dentist rests beneath
  This high-heaped grassy mound;
True man was he, although his teeth
  Full often false were found.

All obstacles he did despise,
  And often would he brag;
He rather liked than otherwise
  To run against a snag.

Much suffering did he assuage,
  His patients lost each pang;
Though, erst the throbbing tooth might rage,
  As they the door bell rang.

His speech was frequent and most free;
  Right seldom would he pause,
Although a master hand was he
  At holding other's jaws.

He owned no family or clan,
  But gave all satisfaction,
And all agreed he was a man
  Of excellent extraction.

He died without a sob or groan;
  He lived in a decent gravity,
And now beneath this cold tombstone
  He's filling his last cavity.

—P. J. Murphy.

Municipal Teeth.—In a recent number of a little monthly bulletin published in New York entitled, "Concerning Municipal Ownership," there is a very amusing article from the pen of Mr. J. K. Bangs called "Alice in Municipaland." It is written, of course, in a humorous vein, but, as it also contains a lesson, we take the liberty of quoting from it for the benefit of our readers.

The "Mad Hatter" explains to Alice all about the iniquities of "Copperations," and then the article reads on as follows:—

"Yes," said the Hatter. "The March Hare and the White Knight and I. We've started a city. We've sprinkled our streets with Rough on Copperations until there isn't one left in the place. Everything in town belongs to the People—street cars, gutters. pavements, theatres, electric lights, cabs, manicures, dogs, cats, canary birds, hotels, barber shops, candy stores, hat shops, umbrellas, bakeries, cakeries, steakeries—you can't think of a thing that the city don't own. No more private ownership of anything—from a toothbrush to a yacht, and the result is, we are all happy."

"It sounds fine!" said Alice. "Though I think I should rather own my own toothbrush."

"You naturally would, under the old system," assented the Hatter. "Under a system of private ownership, owning your own teeth, you'd prefer to own your own toothbrush, but our Council has just passed a law making teeth public property. You see, we found that some people had teeth and other people hadn't, which is hardly a fair condition under a republican form of government. It gave one class of citizens a distinct advantage over other people, and the Declaration of Independence demands absolute equality for all. One man owning his own teeth could eat all the hickory nuts he wanted just because he had teeth to crack 'em with, while another man, not having teeth, had either to swallow them whole, which ruined his digestion, or go without, which wasn't fair."

"I see," said Alice.

"So it occurred to Mr. Alderman March Hare here," continued the Hatter, "that we should legislate in the matter, and at our last session we passed a law providing for the municipal ownership of teeth, so that now, when a toothless wanderer wants a hickory nut cracked he has a perfectly legal right to stop anybody in the street who has teeth and make him crack the nut for him. Of course we had a little trouble enforcing the law—alleged private rights are always difficult to get round. Long-continued possession has seemed so to convince people that they have inherent rights to the things they have enjoyed that they put up a fight, and appeal to the Constitution and all that, and even when you mention the fact, as I did in a case that came up the other day, when a man refused to bite off another chap's cigar for him, that the Constitution doesn't mention teeth anywhere in all its classes, they are not easy to convince. This fellow insisted that his teeth were private property and no city law should make them public property. He's going to take it to the Supreme Court. Meanwhile his teeth are in the custody of the Sheriff."

"And what has become of the man?" asked Alice.

"He's in the custody of the Sheriff, too," said the Hatter. "We couldn't arrange it any other way except by pulling his teeth, and he didn't want that."

"I can't blame him," said Alice, reflectively. "I should hate to have my teeth taken away from me."

"We don't take a man's teeth away from him without compensation," said the Hatter. "We pay him what the teeth are worth, and place them at the service of the whole community."

"Where do you get the money to pay him?" asked Alice.

"We give him a Municipal Bond," explained the Hatter. "It's a 10 per cent. bond costing two cents to print. When he cracks a hickory nut for the public, the man he cracks it for pays him a cent.

He rings this up on a cash register he carries pinned to his vest, and at the end of every week turns in the cash to the City Treasurer. That money is used to pay the interest on the bonds. The scheme has the additional advantage that it makes a man's teeth negotiable property in the sense that, whereas under the old system he couldn't very well sell his teeth, under the new system he can sell the bond if he gets hard up. Moreover, the City Government having acquired control, has to pay all his dentist's bills, supply tooth powder, and so on, which results in a great saving to the individual. It hardly costs the City anything, except for the Tooth Inspector, who is paid $1,200 a year, but we can handle that easily enough, provided the people will use the public teeth in sufficiently large numbers to bring in dividends. Anyhow, we have gone in for it, and I see no reason why it should not work as well as any other municipal ownership scheme."

Theory to Account for Deterioration of Tooth Structure.—A new and ingenious theory to account for the deterioration of tooth structure is brought forward by Dr. A. Deninger, who recently lectured at Mainz before the Association of Rhenish Naturalists. While he does not deny that teeth deteriorate in consequence of our eating too much soft food, and eating it too hot or too cold, his researches have revealed another important factor. His starting point was the well-known fact that animals usually have sounder teeth than human beings, although there are exceptions. The ancient Romans and Germans had wonderful teeth. In the Romische-Germanische Museum of Mainz there is not a single set of teeth with caries. Among animals, again, some have exceptionally sound enamel on their teeth. Walrus and hippopotamus teeth are so hard that it is almost impossible to cut them. Now, these animals wallow much in mud, which contains a large proportion of fluoride of calcium. This fluoride, according to Dr. Deninger, is the key to the problem. Our ancestors did not wash vegetables as carefully as we do; they swallowed much earth and that earth contained the fluoride of calcium necessary for the enamel of our teeth. He would not, of course, advocate a return to ancestral habits. The chemical can be taken in form of a tablet. The doctor, after eighteen years of experiments on young and old, has become absolutely convinced that this simple and inexpensive method answers the question how to preserve the teeth.—Dental Record.

Artificial Rubber.—Samples of a new artificial rubber (Zakin-Gummi) from Stockholm are on view at the offices of the Board of Trade, 73 Basinghall street, London, E. C. These comprise change mate, tubing, etc., and are both red and brown. The substance has the appearance of rubber, but is somewhat "doughy" to the feel, and is stated not to be able to withstand moisture—one of the chief functions of natural rubber.—British Dental Journal.

REGULAR CONTRIBUTIONS

THE SUPERIORITY OF THE LOGAN CROWN.*

BY F. G. HAWKSWORTH, D. D. S.

There are three important facts to be considered in the selection of a porcelain crown for the operation of crowning a root.

The first and most important is durability, for, if the crown possesses all other features and lacks the strength necessary to the function of mastication, it is useless.

The second is the artistic feature, for it is important not only that the operation shall be durable, but that the results shall approximate Nature's own.

The third is simplicity, for where time and labor are a consideration, the simpler the operation of successfully fitting and mounting the crown on root the more the patient will be spared of pain and endurance and the more the dentist's time and labor will be conserved.

These are points for the Logan crown. Its superiority is unquestioned; because of the general recognition of its advantages it has practically superseded all other porcelain crowns.

A BRIEF DESCRIPTION.

A little study of the characteristics and capabilities of the Logan crown will demonstrate its value. It is an all-porcelain crown with a strong, tapered platinum post baked in the porcelain, with the base cupped out around the post, forming a recess for the placing of a considerable body of cement.

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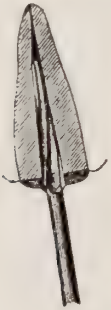
*Read before the Columbus Dental Society, March 5, 1907.

DURABILITY.

The durability of a Logan crown is assured by the following features:

The crown and its non-corrodible anchor post are practically one piece, the porcelain being baked around the larger end of the post, the continuous flanges of which afford a firmer attachment than can be obtained in any other way.

The post is of a regular I-beam form, tapering from the crown end, thus placing the most metal where the greatest strength is required. The tapering form of the post not only facilitates the mounting of the crown, but the wedge-shaped grooves made by its flat ribs give the cement a greater retaining hold upon it. When the post is cemented into root the cement forms two solid wedges between the flanges on either side, making it impossible to pull the post out while the cement remains. The post is so placed with the flanges to the labial and lingual faces as to oppose the greatest resistance against the greatest strength. The oblong shape of the post prevents its rotation in the root, its four corners engaging with the walls of the enlarged canal in such wise as to insure immobility. The recess in the base will contain a sufficient quantity of cement or other retaining material to make a fluid-tight joint between crown and root. This is important in prolonging the life of the operation. The carrying of the cement into the base of the crown adds materially to the strength of the operation. The line of leverage is brought nearer to the point upon which the biting force is applied because of the considerable body of cement instead of a thin disc as in ordinary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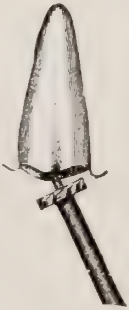
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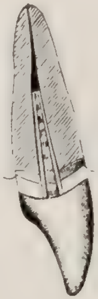
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crowns. This reinforcement cement largely lessens the liability to fracture. The hollowed-out base also assures the strength of the attachment of the post to the crown, because the insertion of the post in the porcelain is beyond the cup; the attachment remains the same no matter how much the edges of the cup are ground away in fitting. There is no diminishing the depth of the insertion, as is the case in crowns having a plain or convex neck end, with the inevitable weakening of the hold of the crown upon the pin by grinding.

ARTISTIC.

The Logan crown is superior in that it permits of an artistic operation.

Being an all-porcelain crown it meets the objection made by many practitioners to the use of metals in the mouth, because of their unsightly appearance. When properly fitted and mounted upon the root it is impossible after the gum has assumed its normal position by coming down over the joint to detect its artificiality, even when the mouth is fully opened. Besides, the porçelain surface on the lingual face is decidedly more agreeable to the tongue than metal. The tissues of the mouth seem to take more kindly to a porcelain surface than to a metallic, and the gum will come back to its normal position sooner than when metal is used. The assortment of these crowns is so large it affords a wide range for selection, the molds being constructed on the lines of the natural teeth, not only as to labial, lingual and buccal surfaces, but as to the form of the root surface and the position and angle of the post.

SIMPLICITY.

The simplicity of the Logan crown is evident in the fact that it is practically a complete crown when bought by the dentist. It requires no fitting and cementing or soldering to attach pin and crown, as is the case with all porcelain crowns in which pin and crown are separable. The work, therefore, is simplified and the risk of breaking incident to soldering eliminated. To put it another way: the operator, instead of having two joints to make, has but one, the other having already been made secure by the manufacturer, who has also provided every facility for assuring the security of the one to be made. The leading operators, in preparing the root surface, invariably bevel the root on its labial side to permit of the lapping of the labial face of the crown at its cervical border over the beveled root, thus giving an artistic as well as entirely satisfactory fit at the gum margin. They recognize that a crown fitted in any other way will present an inartistic appearance and may irritate the gum. The Logan crown is constructed to meet his idea, and the surface of the crown, which comes in contact with the root is designed as nearly ideal as we can make it, requiring little grinding to fit the average root in the normal state. The cup-shaped base of the crown enables the operator to more readily grind and fit the crown to the root than when the base is solid or convex in form, inasmuch as only a thin wall is to be ground instead of a solid mass for the outer surface of the post.

ADAPTABILITY.

Through its own inherent excellence of form and the number of different molds which are available for selection, the Logan crown is almost universally adaptable. The only cases in which it cannot be applied are those in which the shut of the jaws is extremely short and those in which there is a marked recession of the gum. There is also an occasional instance where the root to be crowned is too small and frail to receive the full-size Logan post. This can usually be remedied by filing down the post to suit. The nearly universal adaptability of the Logan is evidenced by the facility with which it lends itself to different methods of working. It can be mounted with bands or with cap or without, and whatever method is used the result is a strong, durable, satisfactory crown. When a Logan crown is to be mounted on a bicuspid with bifurcated root, all that is necessary is to split the post.

SELECTION.

Proper selection has an important bearing upon the fitting and mounting of Logan crowns, just as in other porcelain teeth. The number and variety of molds of these crowns afford ample opportunity for the wise exercise of this faculty. Taking advantage of this opportunity for selection, and considering the ease and security with which it can be mounted, the Logan is the cheapest crown at the service of the dentist.

MOUNTING THE LOGAN CROWN.

The canal of the root to be crowned is opened to the proper depth with a twist drill large enough to admit rather more than the point of a tapering canal reamer. (Fig. A). With this it is practically enlarged and tapered to fit the post of the crown; then, with a root-facer (Fig. B), a labial slope is given to the end of the root—the enlarging of the canal receiving the pivot point of the facer to prevent accidental cutting of the free margin of the gum. The anchor post of the crown is then placed in the hole (Fig. C) to determine the proper alignment of the crown. If it has not been attained, the difficulty can be remedied by sweeping the reamer while in motion around the side of the hole in the direction which requires enlargement. When proper alignment is attained the hole may be enlarged and deepened to admit the pin until the crown and loop nearly touch. If the neck end of the crown and tooth fit each other, the operation is ready for completion.

AERDENTALLOY VS. VULCANITE PLATES.

BY A. D. DESS.

For thirty years after the discovery of Aluminum by Wohler, [1828] it was, owing to the difficulty and expense encountered in reducing it, a very rare and high-priced metal. In 1858 Deville evolved a process by which it was produced in much larger quantities and at greatly reduced cost.

At about this latter date, less than fifty years ago, the dental profession recognizing the physical characteristics of the metal which were favorable to its use in the making of artificial dentures, first began to use it.

At about the time of the introduction of Aluminum in Dentistry Dr. James B. Bean, of Baltimore, directed the first efforts ever made toward moulding, or casting plates in this metal.

Dr. Bean's idea of casting the metal seems to have been dependence upon gravity; he seems to have believed that he might be able to overcome the low specific gravity of the metal through bulk of molten metal above the matrix, and his apparatus was so constructed that the crucible in which the metal was fused was several feet above the flask.

The work of Dr. Bean failed of desirable results. The reasons for his failure, looking at his experience in the light of modern developments, are plain. It is quite probable, in the first place, that the metal produced at that time was not as thoroughly refined as it is at the present time and contained a larger proportion of impurities, and that fact of itself precluded the practical success of the plates, in the mouth, if successfully cast.

In the casting, however, Dr. Bean encountered difficulty which he could not overcome, resulting in his inability to make casts with any degree of positiveness as to their being mechanically perfect, and his experience in this particular has been amply verified in the experiences of all who have endeavored to cast the straight, or unalloyed metal into plates.

Following the work of Dr. Bean, there next came into this special field of endeavor Dr. C. C. Carroll. Dr. Carroll recognized the necessity of alloying the metal for the purpose of improving its capacity for withstanding the effects of the oral secretions, but he did not get away from Dr. Bean's idea that pressure was demanded in injecting the metal into the matrix, and he constructed and used apparatus which employed as a means of forcing the metal into the matrix a rubber bulb attached to the top of the crucible.

Owing to the employing of pneumatic pressure, Dr. Carroll's system, as had Dr. Bean's, proved a failure, for it was never possible to know the amount of pressure demanded to make a perfect plate, and one was quite as liable to get too much pressure, thereby blowing air into the matrix, as he was to fail to perfectly fill the matrix with the metal by knowing just when to terminate the pressure.

Contemporaneously with Dr. Carroll's efforts, Dr. Zeller introduced a system of casting Aluminum plates wherein he employed suction to draw the metal into the matrix, but his system, like the others, had too great an element of uncertainty atached to it to make it practical and permanent.

While the men mentioned have been the most prominent investigators and workers in the line of cast aluminum work, others have devoted time and energy to it, but in no cases has it seemed to occur to the devotees of the work that pressure, if the metal be alloyed, as is demanded in order that the plate be durable in the mouth, is unnecessary and uncalled for, and the fact seems to have been undiscovered by them that it is possible to cast Aluminum (properly alloyed) dentures with as much positiveness as that with which other kinds of plates are made and with even greater ease.

The dental profession is awakening to a sense of the fact that the use of vulcanite in the making of base-plates is wrong. This awakening has been potently influenced by free denunciation of the practice by the medical profession.

The majority of men in the dental as well as in the medical profession, and even many laymen know that from a scientific standpoint there is nothing whatever in either the physical, or chemical qualities, or properties of vulcanite which merits its employment in the making of dental base-plates; indeed all thinking men of scientific training can but comprehend that a vegetable matter of very limited heat-conducting capacity when held in contact with animal mucous tissue by atmospheric pressure, as are base-plates, particularly the upper, cannot be compatible to those tissues.

It is well known and conceded by almost all dentists that it is because of this incompatibility that practically all mouths in which vulcanite base-plates are worn are found to be in a pathological condition.

While vulcanite is known to contain poisonous ingredients, the fact that it constantly maintains the tissues underlying it in a superheated condition, as a result of its physical property of non-conductivity of heat, is conceded to be the dominant objection to its use for base-plates from a physiological standpoint.

In addition to the objectionable effects of vulcanite upon the soft tissues of the mouth through its property of non-conductivity of heat, is the equally evil effect produced, through this same property, upon the bony structure of the alveolar process, namely: abnormal absorption of this structure. It is a well known fact, and one readily accounted for scientifically, that absorption of the bony structure of the mouth takes place much more rapidly under a vulcanite than under a metal base-plate.

The sentiment is rapidly spreading in the dental profession that the physiological interests of humanity, as well as the interests of the profession in various ways, are not subserved by the use of vegetable compounds in making base-plates and it is plainly evident that the profession is ready to adopt a substitute for vulcanite when one of metal is offered.

Aluminum, because of its lightness, is the only metal aside from gold and platinum adapted to general use for base-plates, and if vulcanite is ever to be superseded by metal, *i.e.*, by a metal which may be used for those who demand a low-priced plate—or one approximating vulcanite plates in cost—this metal undoubtedly must be considered its logical successor.

Dr. R. C. Brophy has directed efforts for a number of years toward bringing to a successful state of development the casting of aluminum dentures, and advantage has been taken by him of knowledge of the experiences of others who have been prominent in this work to the end that he might avoid the errors which led to their failure.

In using aluminum in cast work, Dr. Brophy has found it necessary to alloy the metal, in order, not only to successfully cast it, but what is of more importance, to produce a plate which is unaffected by the oral secretions.

Aluminum unalloyed, or "straight" aluminum—the term, "pure aluminum," cannot be used, for the reason that there is no pure aluminum upon the market—cannot be cast successfully, and if it were successfully cast, the plate could not be relied upon to withstand the disintegrating tendencies of alkaline conditions often met with in the oral secretions. It is well known by the profession that aluminum plate used in swaged work is frequently found to be susceptible to disintegration through chemical action in the mouth.

For two reasons, then, the alloying of aluminum has been found necessary: to facilitate casting, and to insure stability of the plate.

The alloy, which Dr. Brophy uses and recommends is composed of aluminum, silver and tin, and it is this combination of metals, properly and scientifically alloyed, which has, for the protection not only of ourselves, but for the protection of the profession as well, been named Aerdentalloy and protected under that title.

By alloying these three metals in proper proportion, the character of the former metal is radically changed. Instead of being a coarse-grained metal, sluggish when fused, as is aluminum, it becomes a very dense metal when in a solid state, and when fused it assumes much greater fluidity, flowing freely and solidly. It is owing to these latter facts that a cast is made with it without pressure with fully as much assurance of success as can be felt in the casting of heavy metal lower plates.

The cause, then, of failure in casting, which so tended to make failures of the efforts of Drs. Bean, Carroll and Zeller, that of the necessity for employing force to precipitate the metal into the matrix, in using Dr. Brophy's metal is avoided.

Again, a very potent cause for the failure in all former efforts to cast aluminum dentures has been in the incapacity of the material of which the models were made to withstand the extreme heat to which they were subjected without shrinking or changing form.

The model, in casting, must be heated red-hot, and it is not an easy matter to produce a compound which, when so heated, will not expand, contract or otherwise change form. The production of such a compound has been accomplished by Dr. Brophy in his Imperial Investment Compound, which is used in making models under his system, and it is to this compound that much is due for the practical success of his system. There is no process of making metal plates extant in which uncertainty of their fitting the mouth is so completely overcome, as is the case of casting a metal to a model which remains perfectly true to the impression. If a perfect impression is taken and the common laws governing preparation of the impression in other classes of work are followed, the fitting of a plate cast to a model made of Dr. Brophy's Imperial Investment Compound is positively assured.

Aerdentalloy plates are physically and chemically adapted to use as dentures; they are compatible to the tissues, they are the strongest of all plates and they are made as easily, and positively, and practically as cheaply, as a vulcanite plate.

In the possibilities offered the profession, through this system of making metal plates, lies a prospect that the thing which is exerting a more degrading influence over the practice of dentistry than all other things combined, the use of vulcanite in making base-plates, will soon be relegated to the past.

DIRECTIONS FOR CASTING BASE-PLATES.

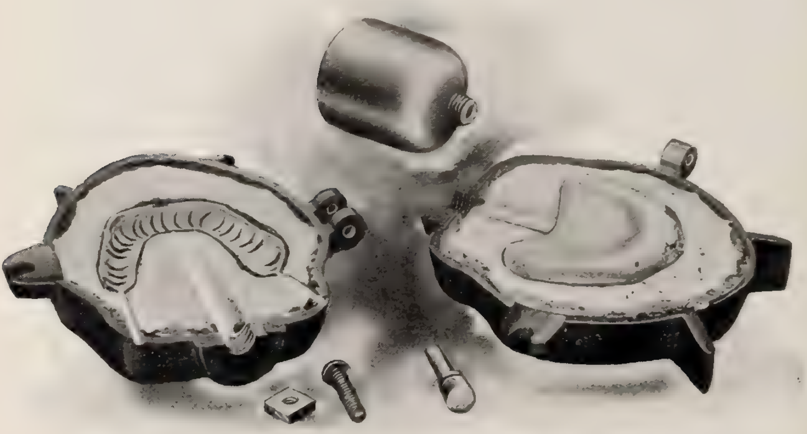
After procuring an Aerdentalloy outfit:

1. Have a perfect impression.

2. Prepare impressions as would be done for other kinds of plates, relieving for hard spots, particularly along the median line of the arch. Air chambers are not advised, though they may be used by carving them in the impression.

3. After the impression is prepared, use some separating liquid, but have it very thin. Soaping the impression is advised.

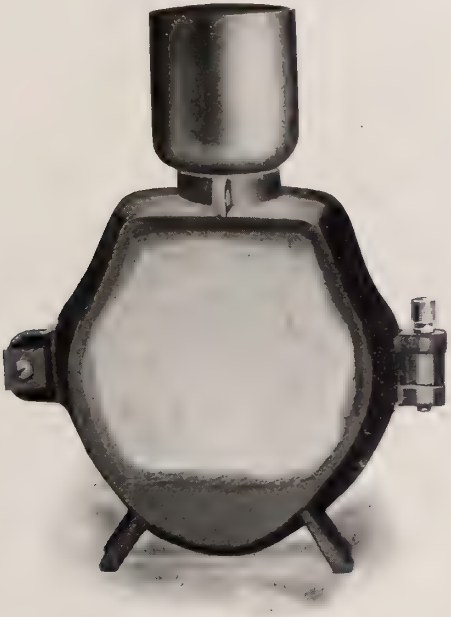
WAXED CASE READY FOR INVESTMENT



FLASK AND CRUCIBLE READY FOR ASSEMBLING

4. Mix Marblemould thin, pour this into and out of the impression a few times until the impression is covered by a thin coating of the material. Mix Imperial Investment Compound thick, and after the coating on the impression has partially set, but before it has set to dryness, pour this into the impression, jarring it down well, and build for the model.

5. After separating, wax up the case, using one thickness of extra thin wax over the model, trimming it as desired. Then cut some narrow strips of wax and lay around the labial and buccal border and along the palatal surface where the inner rim is desired to be. See that a perfect under-cut is in the rims all around, and then serrate or stipple the wax within the rims. The case is now ready for investing.

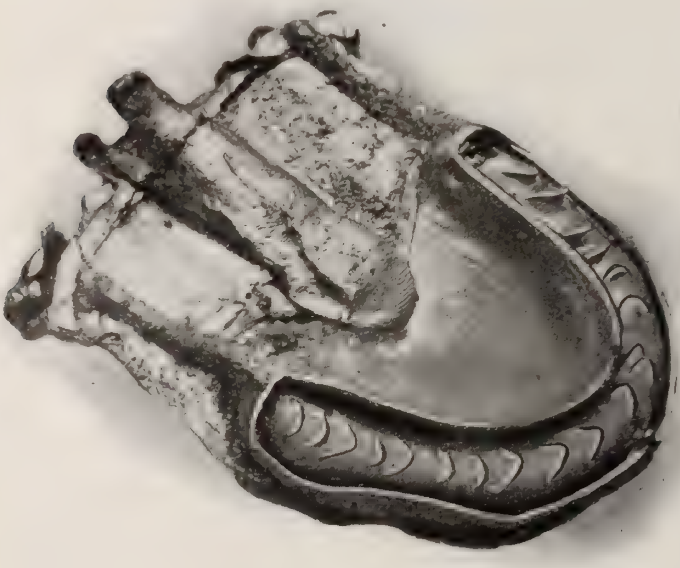


READY FOR THE FURNACE

6. Invest in one-half of a Brophy flask, using Imperial Compound, having the investment come to the wax all around; after smoothing up, soap the surface of the investment and place the other half of the flask in position and pour it, also, with the Imperial Compound.

7. After the investment has thoroughly set, place in boiling water to soften the wax before separating. Now separate, and wash out with boiling water.

8. Cut a large gate from the opening of the flask, where the crucible is attached, to the center of the heel of the plate; this gate should be large and free, except where it opens into the matrix; and cut two small gates from each tuberosity to the niches in the top of the flask at each side of the crucible. It is advised that a small depression be made in the model along the extreme heel of the plate over the palatal surface, this depression to be feathered out thin toward the anterior portion of the plate to insure closer adaptation of the heel of the plate.



CAST PLATE IN THE ROUGH

9. Bolt the flask firmly together with crucible in position. Then, with some of the Investment Compound mixed thin, lute the flask around the bottom of the crucible.

10. Place the flask in the furnace, and start the burners, throwing the flame directly against each side of the flask; keep the flames playing on the case until it becomes red hot. At this stage the case should be watched closely in order that overheating

be avoided, as the metal may be so highly heated that the plate will come out with minute pits in it; 25 or 30 minutes should be sufficient time to heat case red hot clear through when gasoline is used, and 35 to 45 minutes should be sufficient time when the gas outfit is used.

CAST PLATE READY FOR RUBBER ATTACHMENT

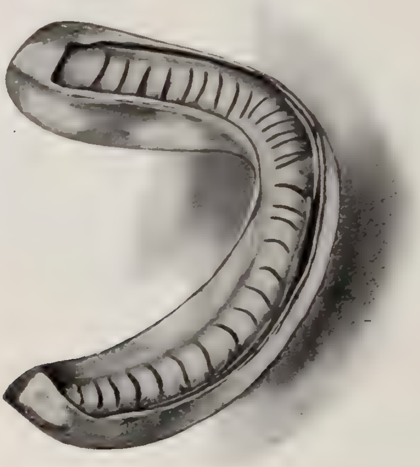
A rule to determine when the case is hot enough is to watch the hole in bottom of crucible. So long as this hole appears as a black spot it indicates that there is still moisture in the case; when it appears as a red spot, enabling one to look through it down into the gate, it signifies that the case is thoroughly heated through and ready for the placing of the ingot of aerdentalloy in the crucible, and this should be done promptly at this time.

11. Place the ingot of aerdentalloy in the crucible and point the flames so that they will strike the crucible, and let them play against it until the metal fuses. Now lift the top off of the furnace, and with a pair of tongs or the handle, grasp the flask, and gently, but sharply, jolt it against the bottom of the furnace; this will precipitate the metal through the hole in the bottom of the crucible, and if the case be properly heated it will show at the vent

holes. Chill metal as it appears, with a wet cloth or sponge and continue to jolt flask so as to thoroughly condense metal. Set the flask where it will cool down, getting it sufficiently cool to handle with the hands before opening.

12. Finish by sawing off the surplus, using files, stones and sandpaper, first coarse, followed by finer, and then pumice, whiting and rouge. The plate may be finished before taking the bite upon it, or after the vulcanizing is done.

When aerdentalloy plates are taken from the vulcanizer they are found to be tarnished. To clean them the following procedure is advised: Place a few drops of caustic soda (saturated solution) in an earthenware cup and slightly heat it. With an old pair of pliers dip a pellet of cotton in this solution and apply it to the surface to be cleaned, and immediately follow this by applying nitric acid (saturated solution) to the plate in the same manner, having the latter also heated in earthenware. This will clean the metal and give it a beautiful frosted appearance. It will be understood that care must be exercised in handling these solutions.



LOWER PLATE READY FOR ATTACHMENT

INSTRUCTIONS FOR CASTING DIRECT TO THE TEETH.

The general practice of casting direct to porcelain teeth is not recommended.

It is advisable to use vulcanite attachments, although if caution is used in setting the teeth up whereby they are protected from stress of occlusion, cases of casting direct may be made to do a long and satisfactory service.

Only teeth having platinum pins can be used in this work.

1. For partial plates, where it is desired to cast direct to the teeth, set up as for vulcanite, except where the teeth approximate there must be a slight space left between them.
2. In waxing up, the wax should be carried but very slightly over the gingival surface of the teeth.
3. In case of a breakage of a tooth from a plate, it may be repaired by removing all of the porcelain, and by the use of a file or burs making undercuts in the metal, setting a new tooth in position and vulcanizing or by using a low-fusing alloy.
4. Before pouring the second half of the flask, the porcelain should be thoroughly cleansed and painted with whiting dissolved in water, this to prevent the metal from adhering where it is not desired that it should, and further to prevent the porcelain from becoming loose in the matrix.
5. In case of a close bite leaving no space for a porcelain tooth, a tooth may be carved in the wax to the occlusion when it will be reproduced in the metal. If desired, a facing may be used and the cusp produced in the metal.

MAL-OCCLUSION OF THE TEETH INVOLVING THE MESIO-DISTAL RELATION OF THE DENTAL ARCHES.*

BY F. M. CASTO, M. D., D. D. S., CLEVELAND, O.

The subject, "Mal-Occlusion of the Teeth Involving the Mesio-Distal Relation of the Dental Arches," which I have chosen to present on this occasion, is a most important one to both the general practitioner and the orthodontist. However, in arranging the subject matter for this paper I have had in mind particularly the general practitioner, and I trust what has been selected will be interesting and instructive to him. Let me say in the beginning that I lay no claim to originality in anything I have to present, but have taken those things from the compilations of other men that have proved valuable in my hands and which were in the beginning, because of a lack of a true understanding of the fundamental principles, difficult for me to comprehend and apply.

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*Read before the Northern Ohio Dental Association, June, 1906, at Cleveland, O.

In my opinion, there is no class of cases of mal-occlusion of the teeth that are attended with more difficulty of a proper diagnosis and correct treatment, so far as the relation of the dental arches to the facial lines is concerned, than those cases in which there is an abnormal mesio-distal relation. Not until Dr. Angle, a comparatively few years ago, gave to the profession a classification of mal-occlusion of the teeth based upon a normal occlusion did we understand or realize the importance of the mesio-distal relation of the dental arches. Previous to that time serious mistakes often were made in the treatment of mesio-distal cases of mal-occlusion, because of an effort to harmonize the size of the arches by means of extraction. There is always in these mesio-distal cases a disparity in the relative size of the arches.

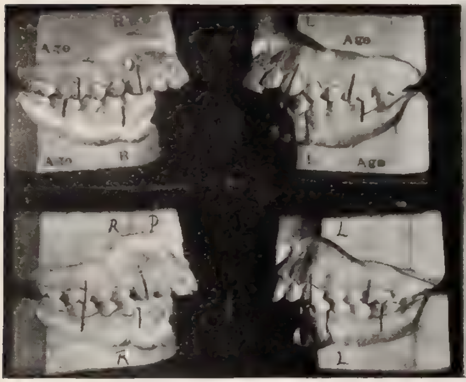

Fig. 1

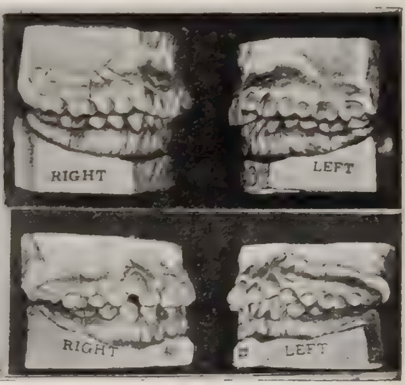

Fig. 2

That you may better understand this relation I have selected for illustration some cases of mal-occlusion, and will classify them according to Dr. Angle's classification. In this classification Dr. Angle assumes that the upper arch is a fixed arch, the lower arch being movable. The terms mesial or distal occlusion have reference to the lower in its relation to the upper arch, unless otherwise stated. It is necessary, in order to determine the mesio-distal relation, to have one or more fixed points in the upper arch. Accordingly, the upper first molars and the upper cuspids have been selected. The upper first molars have been selected because they are found to occupy normal mesio-distal positions more often than any of the other teeth. In fact, Dr. Angle claims, and I believe rightfully, too, that they are almost invariably in their correct positions in relation to the bones of the face. The upper cuspids have been selected on account of their history and great size. They often force their way into a relatively normal mesio-distal position at the expense of their neighbors. If, however, the relation of the arches can not be determined by these points, the occlusion of all of the cusps should be taken into consideration, and a careful study made of the exact occlusion of each cusp. In this way the relative position of the greater number of cusps would determine the mesio-distal relation. Usually the permanent mesio-distal relation will be established at the time of the eruption of the four first molars and the subsequent locking of their cusps. The manner in which they lock will decide whether the relation will be normal or abnormal. However, there may be exceptions to this rule. A few cases have been reported in which there was a well-defined distal or mesial occlusion of the lower arch in the temporary set, and other cases where the relation had changed from normal to abnormal after the eruption of most of the permanent teeth. Class II. is characterized by a distal occlu-

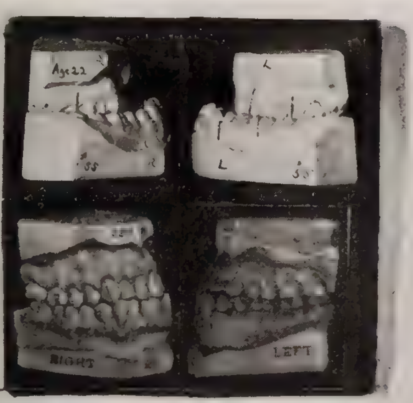

Fig. 3

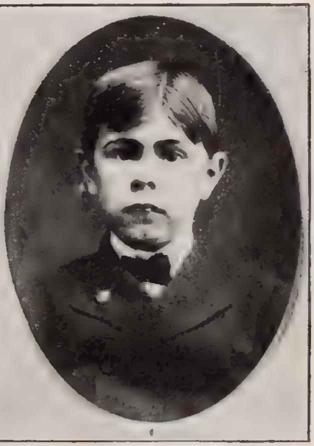

Fig. 4

sion of the lower arch in its relation to the upper arch. It is divided into two divisions and two sub-divisions:

Division I. Bi-lateral distal occlusion of the lower arch in its relation to the upper; protruding upper incisors; mouth-breathers.

Sub-division. Unilateral distal occlusion of the lower arch; protruding upper incisors; mouth-breathers.

Division II. Bi-lateral distal occlusion of the lower arch; retruding upper incisors; usually normal breathers.

Sub-division. Unilateral distal occlusion of the lower arch; retruding upper incisors; usually normal breathers.

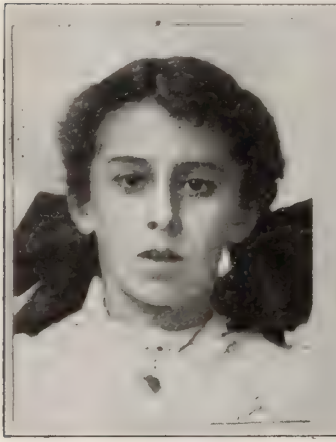

Fig. 5

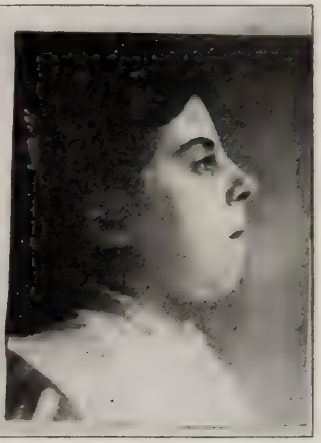

Fig 6

Class III. is characterized by a mesial occlusion of the lower arch in its relation to the upper arch. It has one division and subdivision.

Division. Bi-lateral mesial occlusion of the lower arch, usually retrusion of the lower incisors and cuspids.

Sub-division. Unilateral mesial occlusion of the lower arch, usually a crossing of the arches in the region of the central incisors.

Fig. 1 shows typical cases of Class II., Div. I. and subdivision. The upper models represent Division I. and are characterized by a bi-lateral distal occlusion of the lower arch in its relation to the upper arch; protruding upper incisors and history of mouth-breathing. The lower models represent the sub-division, there being a unilateral distal occlusion of the lower arch, otherwise being just the same as the division.

Fig. 2 shows typical cases of Class II., Div. II. and subdivision. These are characterized also by a distal occlusion of the lower arch in its relation to the upper, bi-laterally and unilaterally, but the upper anterior teeth are retruding instead of protruding. The history of the cases shows normal breathing. In this class of cases the upper arch is contracted only enough to harmonize in size with the lower, which, in its distal position, presents a smaller circle for occlusion with the upper, and which generally contracts to fit the lower. This contraction is probably caused by the influence of the occluding incline planes.

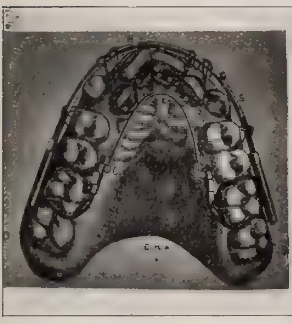

Fig. 7

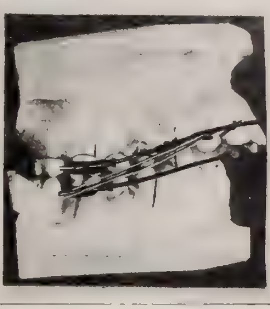

Fig. 8

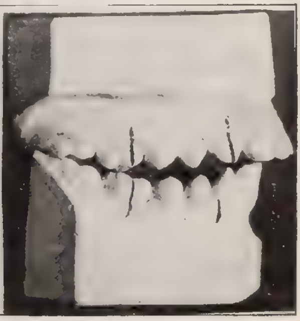

Fig. 9

If I have clearly presented Class II., you will have observed that the only differences between Div. I. and Div. II., so far as the occlusion is concerned, are that in Div. 1. the upper incisors protrude and a history of the case discloses mouth-breathing, while in Div. II. the upper incisors retrude and a history of the case usually shows normal breathing.

Fig. 3 represents typical cases of Class III., the upper models showing the division in which there is a bi-lateral mesial occlusion of the lower arch in its relation to the upper. You will observe in this case the decided lingual inclination of the lower incisors and cuspids. The lower models show the subdivision in which there is a unilateral mesial occlusion of the lower arch in its relation to the upper. Here you will notice a crossing of the arches in the region of the upper centrals.

Figs. 4, 5 and 6 are the pictures of patients of Class II., Div.

I., type. In these cases you will observe the characteristic appearance of mouth-breathers. At this point I wish to say that I am almost prepared to affirm the statement that all cases of Class II., Div. I., are primarily caused by mouth-breathing. Let us consider a typical case such as I have just presented. The patient presents for treatment at the age of twelve years. By a careful and thorough examination there will be disclosed the following conditions: Adenoid growths will fill the posterior naso-pharyngeal space, completely occluding the nares and rendering nose-breathing impossible. The patient is necessarily a mouth-breather, and probably has been for a number of years. There will also be an arrested development of the nose and bones of the face, the nose usually is broad and flat and the eyes too far apart. The muscles of the cheeks are drawn out of a harmonious relation with the features of the face; the upper lip atrophied and the lower lip hypertrophied. The mandible will be arrested in its development with a receding and drooping chin. There is a vacant and listless expression, and in many cases the tongue often protrudes, which makes more horrible the already idiotic appearance. The physical condition is most always much below normal, and the patient is

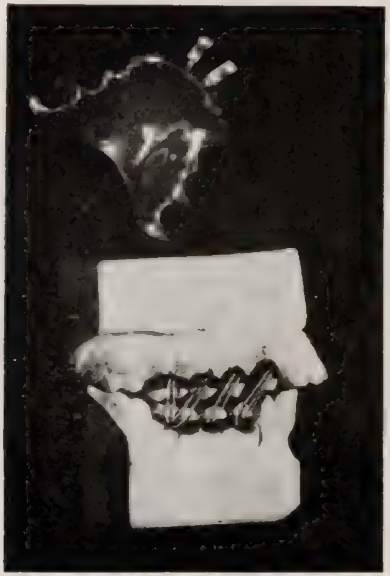

Fig. 10

anaemic and poorly nourished. They usually have no appetite or ambition to get one; seldom indulge in outdoor sports with other children, preferring to remain in the house. They do not advance in school work as rapidly as other children, having been handicapped by a dull and impaired mentality. In examining the teeth we find a distal occlusion of the lower arch; protruding upper anterior teeth and contracted upper arch.

A correct diagnosis is necessary before the treatment of any case can be determined.

First, examine the teeth and gums carefully, and if in need of dental services, have everything taken care of previous to the adjustment of any orthodontia appliances.

Second, secure models made from good plaster impressions.

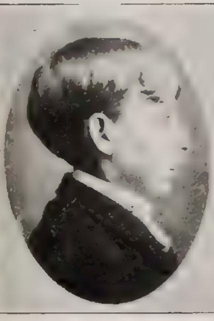
Fig. 11

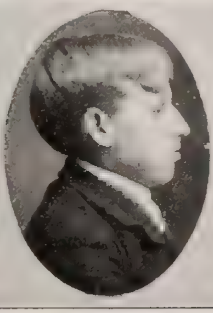
Fig. 12

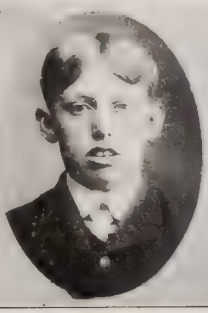
Fig. 13

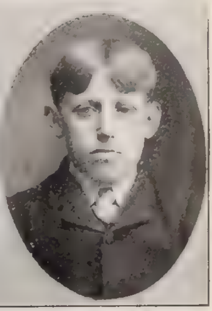
Fig 14

By a close study of these models, comparing them carefully with the teeth in the mouth, determine the mesio-distal relation; determine whether all the teeth that are due have erupted; if not, search for the missing ones with the X-ray; observe whether the teeth individually are in their right positions, whether the arches are contracted, and how much, and examine closely the inclination of the roots and crowns of mal-posed teeth. In considering the conditions, give especial attention to the ability to masticate.

Third, study carefully the facial lines according to the type and the relation of the dental arches to the facial lines and contours.

Fourth, observe if the patient is a normal breather; if not, have the nose and throat examined and cared for by a reliable rhinologist.

Fifth, take the history of the case, i. e., age, physical condition, hereditary influences, habits, environments, appreciation of parents, disposition of child, home training.

Age—In regard to the age of the patient, I have found the most satisfactory time for treatment is between the seventh and fifteenth year, although I am governed by the following rule: That whenever a definite mal-occlusion is established and is being maintained by the forces which are constantly operative, then mechanical interference should be applied to correct it, no matter what the age.

Prognosis—Usually favorable, especially up to the fifteenth year.

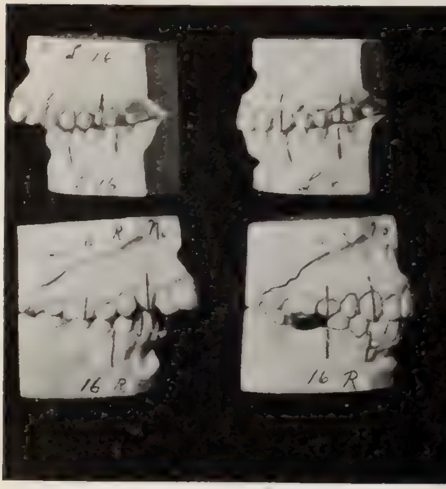

Fig. 15

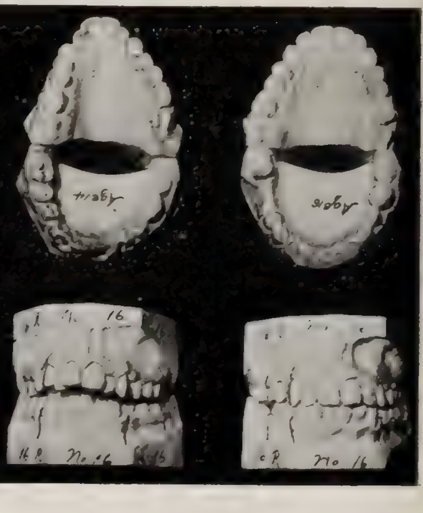

Fig. 16

TREATMENT.

Dr. Angle says: "In the treatment of all cases of mal-occlusion our efforts should be toward the accomplishing of three main objects:

"First, correction of mal-occlusion.

"Second, establishment of harmony in the relation of the jaws.

"Third, improvement of the facial lines. In the accomplishment of these, our efforts should be toward the ideal, where normal occlusion, normal relation of the jaws and harmony of facial lines are combined. While the ideal is not always possible to attain, yet the best attainable results cannot be hoped for with a lesser standard."

In describing the treatment for Class II. and Class III. cases, I will give briefly that which I have used successfully in the treatment of three or four cases that I will take the liberty of showing here on the screen a little later.

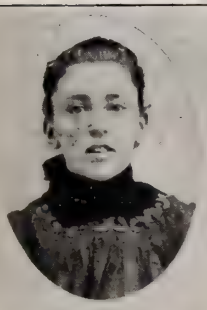

Fig. 17

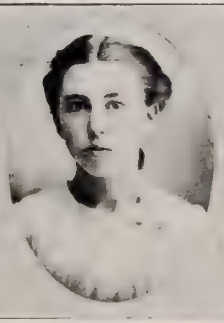

Fig. 18

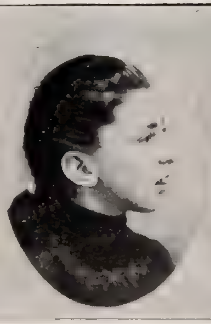

Fig. 19

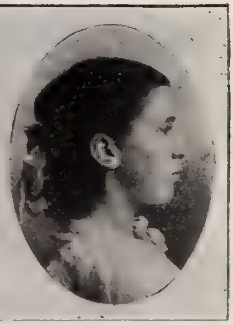

Fig. 20

The appliances consisted principally of expansion arches, plain bands and clamp bands and the application of the intermaxillary force by means of rubber bands.

Fig. 7 shows the expansion arch in position with clamp bands adjusted on the first molars for anchoring it, and plain bands carrying lugs placed on the incisors with wires engaged over the lugs, thence twisted around the arch for the purpose of rotating and carrying the incisors forward, thereby lengthening

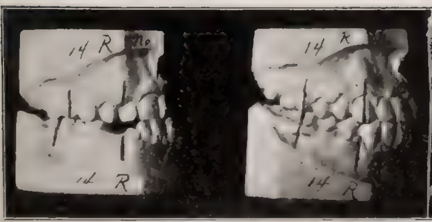

Fig. 21

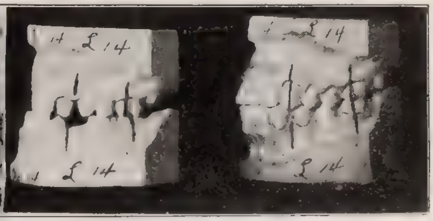

Fig. 22

the dental arch. The lingual arch shown is for reinforcement when more force is required for expansion. I have displayed this picture more especially for the purpose of illustrating in general how the expansion arches are adjusted. The adjustment of the lower arch does not differ materially from the adjustment of the upper arch.

Fig. 8 shows the upper and lower expansion arches in position and the intermaxillary force, commonly called the Baker anchorage, applied.

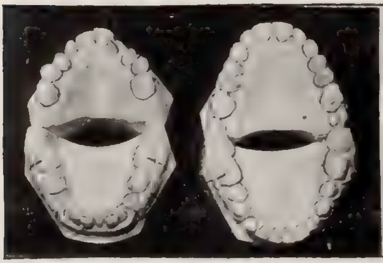

Fig. 23

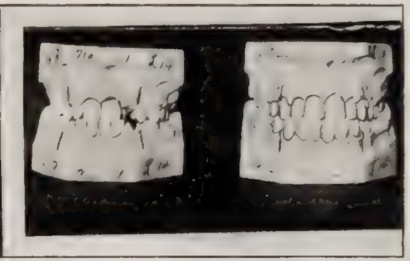

Fig. 24

Hooks pointing mesially are soldered onto the upper arch in the region of the cuspids, over which rubber election bands are engaged, then drawn back and engaged over the posterior part of the tubes on the clamp bands on the lower first molars; one or more elastics may be used, depending altogether upon the amount of force required.

Fig. 25

Fig. 26

Fig. 27

Fig. 28

As shown in this illustration, the force is for the purpose of shifting the occlusion in a Class II., Div. I., case; that is, the moving of the lower arch mesially, and the upper arch distally.

In a Class III. case the force would be reversed; that is to say, hooks pointing mesially would be soldered on the lower arch in the region of the cuspids, and the elastics would be engaged over these hooks drawn back and engaged over the posterior part of the tubes on the clamp bands on the upper first molars.

It is usually necessary, in Class II. cases, to expand the upper arch before attempting to shift the occlusion, so when the lower arch is moved forward there will be a harmony in the relative size of the two arches.

There are certain types of cases belonging to Class II. which are most difficult to treat. They present the following conditions: Close bite, short molars and bicuspids, elongated upper and lower incisors, and the arches almost of a normal width. In such cases, when the lower arch is moved forward, there is no occlusion on the molars and bicuspids, the incisors alone receiving the entire force of occlusion.

Fig. 9 represents such a case after the lower is moved forward.

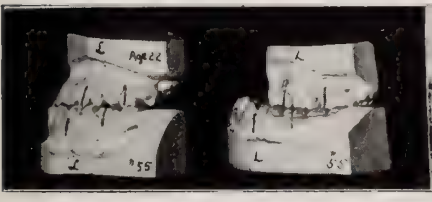

Fig. 29

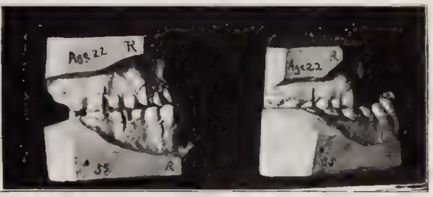

Fig. 30

In the treatment of such cases, I have used the following method:

The teeth are first aligned by the use of the expansion arch and the dental arches are molded to the proper size and shape to establish a harmonious relation in them. The expansion arches are then removed. Bands with hooks pointing gingivally are placed upon the upper cuspids and bicuspids and molars, and upon the lower bicuspids and molars. Small elastics are engaged over the hooks on the upper and under the hooks on the lowers, thus applying the intermaxillary force on the individual teeth.

A vulcanite bite-plate is then made to fit the upper arch; this plate is a modification of the Kingsley bite-plate and was first used, I believe, by Dr. Angle. It has vulcanized into it German silver wires, which fit close to the lingual side of the incisors, pass down and are bent over the incisoral edges. Fig. 10 illustrates the appliances *in situ*. By this method the occlusion is shifted, the upper and lower incisors are depressed, and the bicuspids and molars are elongated, thereby raising the bite and relieving the force of occlusion on the anterior teeth.

Figs. 11, 12, 13, 14 are the photographs of a boy thirteen years of age who was treated for a Class II., Div. I., case of mal-occlusion. You can readily observe the improvements in the facial harmony; I am sorry that I have not photographs of the models to present but unfortunately they were overlooked by the photographer.

Figs. 15 and 16 illustrate another case of Class II., Div. 1., before and after treatment. Please observe that the lower right first molar has been lost and the space entirely closed by the mesial movement of the second molars and the distal movement of the bicuspids. It was necessary to open the space and supply the lost molar artificially.

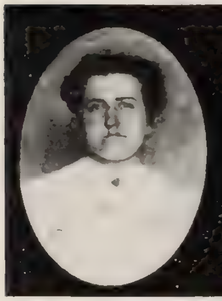

Fig. 31

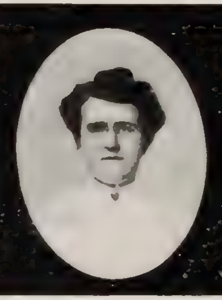

Fig. 32

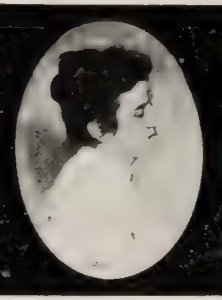

Fig. 33

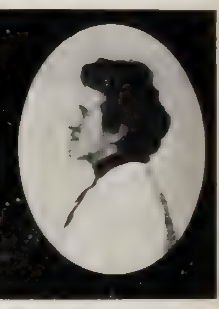

Fig. 34

Figs. 17, 18, 19 and 20 are the photographs before and after treatment.

Figs. 21, 22, 23 and 24 illustrate a case of Class II., Div. II., before and after treatment. Notice, please, the very small upper arch. The upper laterals were in contact with the first bicuspids, and although there was a bi-lateral distal occlusion of the lower arch in its relation with the upper arch, the upper incisors were lingual to the lower incisors. The lower incisors had, in addition, a lingual inclination.

Figs. 25, 26, 27 and 28 are the photographs of the patient before and after treatment.

Figs. 29 and 30 illustrate a case of Class III. This was the worst case of mal-occlusion that I have ever treated, and while it is not yet completed, the treatment has been postponed for the purpose of allowing the teeth to straighten up and to allow a deposition of new bone. The teeth have been moved as far as possible at present. I hope to continue the treatment later and be able at some future time to show the finished results.

Figs. 31, 32, 33 and 34 show the photographs of the patient at the beginning of the operation and at present. The improvement in the facial lines is gratifying, to say the least.

That is all I have to present. I thank you, gentlemen, for your kind indulgence.

MESIO-DISTAL MAL-OCCLUSION.*

BY BURT ABELL, D. D. S., TOLEDO, OHIO.

It is very gratifying to see the awakened interest in orthodontia among dentists nowadays. A program is hardly complete without a paper on this subject. While Dr. Angle is undoubtedly right that the *operations* in orthodontia should be confined to those who have specially fitted themselves for the responsibilities, yet the demand for papers and the zest for discussion on this subject argues well for the breadth of mind of the twentieth-century dentist, who wants to know all about it. And indeed he should know, and know well, whether the little patients who trust him so implicitly have an ideal armament of teeth, not alone that they should have teeth free from decay, but whether these same teeth so occlude as to resist decay, and also give the maximum of service

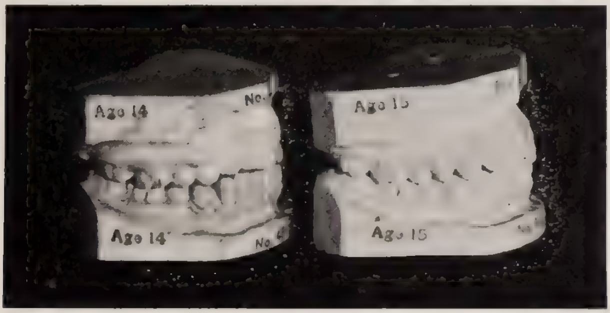

Fig. 1

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*Read in discussing Dr. Casto's paper at Northern Ohio Dental Society, 1906.

in mastication, to say nothing about the esthetic side of the question. More and more of the best class of patients are demanding this, and it is a thousand pities that so many are not within the reach of the specialists. When the demand is great enough there will surely be more of them.

The essayist has chosen a phase of the subject that, to properly treat, one must be not only an orthodontist, but an artist of no mean ability. Instead of producing the beautiful in lifeless materials, the one who attempts to mould the human face is dealing with living flesh and blood. Like any other phase of art, very, very much is left to the judgment of the artist. To those who have closely followed the articles on this subject in the recent numbers of the *Cosmos,* the difficulty of proper diagnosis and correct treatment is most apparent.

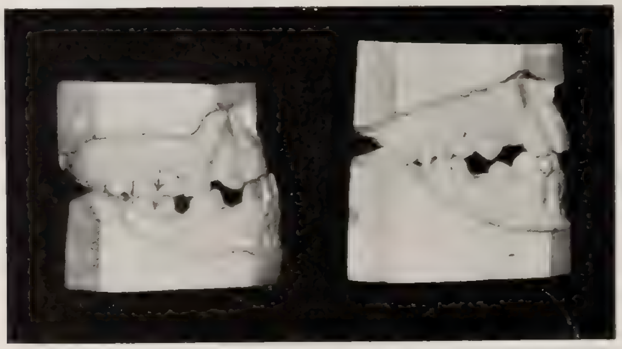

Fig. 2

The essayist speaks of the first permanent upper molar as the most constant in its relation to the rest of the face. This is true, but it is not an entirely safe guide to follow. Instead of taking the position of the greatest number of cusps as the basis of our diagnosis, when these molars are out of normal relation, would it not be safer to carefully estimate the relation of the jaws and what excursions of the lower are necessary? In other words, the all-important thing in these Class II. cases is not so much the relation of the cusps as the *relation* of the *jaws themselves.* The cusps are merely *impedimenta* in our efforts to restore the normal relations of the jaws in Class II. cases, and become a more or less efficient locking device when normal relations of both jaws and cusps are established, this efficiency depending very greatly on the depth and sharpness of the cusps. The following case will illustrate this point more or less fully. (Fig. 1). The position of the jaws is mesio-distally correct. Unfortunately, the photographs are not at hand to prove this to you. (The term "jaw" is used in this discussion as being more comprehensive than the term "arch").

You will notice that the upper molars and bicuspids have drifted mesially, obliterating the space for the cuspid. There was opportunity here for a very grave mistake, had the upper molar been taken as the fixed point from which to reckon and the facial lines and relation of the jaws been ignored. This is merely a word of warning and emphasis, and not a criticism of the paper.

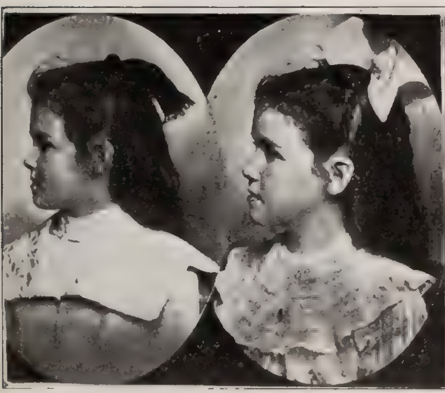

Fig. 3

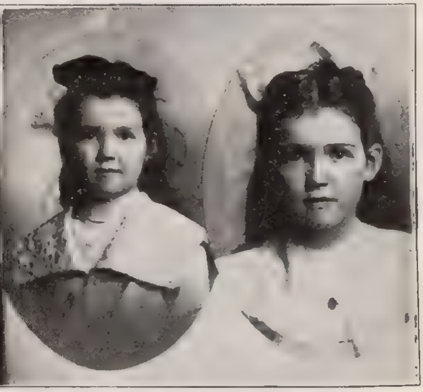

Fig. 4

The essayist also speaks of the time at which the mesio-distal relation of the arches is fixed as being that of the eruption of the first permanent molars, and that this adjustment at this time fixes the occlusion of the subsequent teeth. This is a most vital point, and one every dentist should understand. The following case will well illustrate this (Fig. 2). This is another in which the mesio-distal relation of the jaws was practically correct but the lower right molar is drifting mesially owing to the too early extraction of the temporary molar. The upper incisors are distal to normal. Study this case a little and you will readily see that, were the lower molar allowed to remain in its present malposition, the erupting superior second bicuspid would drop into the center of it (note the arrow). You can readily see that each succeeding tooth on the lower, as it erupts, would take a position mesial to normal, eventually causing the whole lower jaw to take a position mesial to normal. That it is not so now can be seen by the photographs. (Figs. 3-4).

The essayist describes a typical case of Class II., Div. I., but in looking up the records in my own cases I find that very few are true to type; in fact, only 25 per cent. of the Class II., Div. I., cases are mouth-breathers. The records show that 80 per cent. of the mouth-breathers were in Class I., with no protrusion of the incisors, and with normal mesio-distal relation of the jaws. The etiology of these cases is still a matter of discussion. Mouth-breathing begins very early in life, but rarely do we see distal occlusion till the permanent molars are *in situ*, i. e., from 6½ to 8 years. Probably it would be safe to say that, when a case of adenoids and distal occlusion are synonymous, the adenoids have been the exciting cause, but we can not conclude that adenoids will always cause distal occlusion, else the above Class I. mouth-breathers would have had distal occlusion.

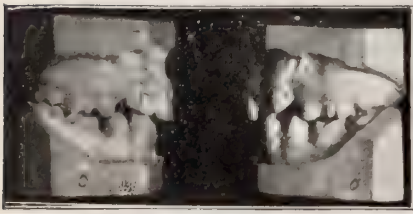

Fig. 5

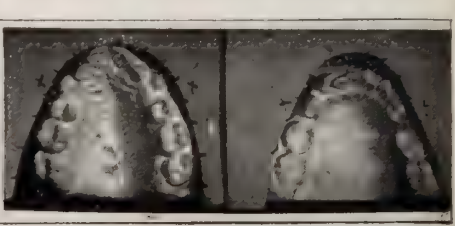

Fig 6

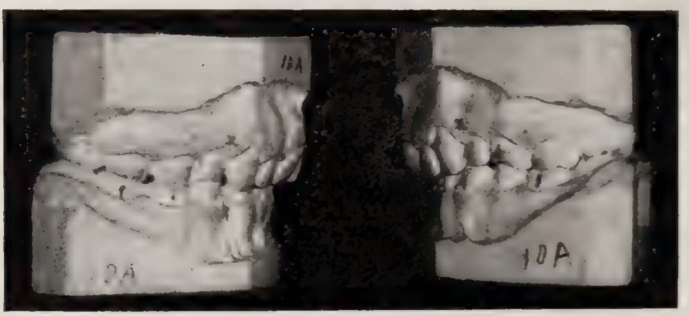

Fig. 7

This is not a proper place to discuss the two standards of diagnosis and treatment, but we of the Angle school believe that the Creator put into every face the size of teeth that, when in normal occlusion, would form the proper framework for the type of face in which they are found; hence, as the essayist stated, *all* should be preserved. It will be easy enough, after all, in normal occlusion, to take one or more out if you find that the face is too full, but if you extract, and then find that you have a flat face, you are helpless. Many are still extracting "to regulate" in spite of the widespread promulgation of the laws of occlusion. It is a bitter pill for us orthodontists to swallow to have some one who thinks he can "regulate" hand out some dust-covered excuse for a model, and say, "You see, I am able to do this work myself. I extracted those bicuspids and that lower incisor and got a good result, very good indeed." "Well, doctor, how did those extractions affect the face or how did they affect the chin?" as the case may be. "Well, I didn't notice. Come to think of it, the face was a little flat, and I *don't think* that it changed it much." The public trust the dentist to do his best for them. They don't know what they want. They have seen the children every day, and nearly always

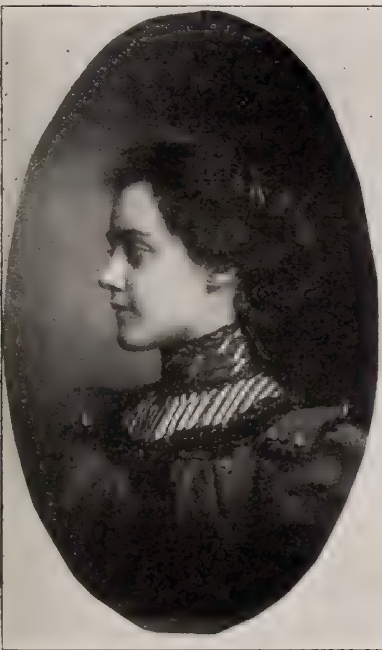

Fig. 8

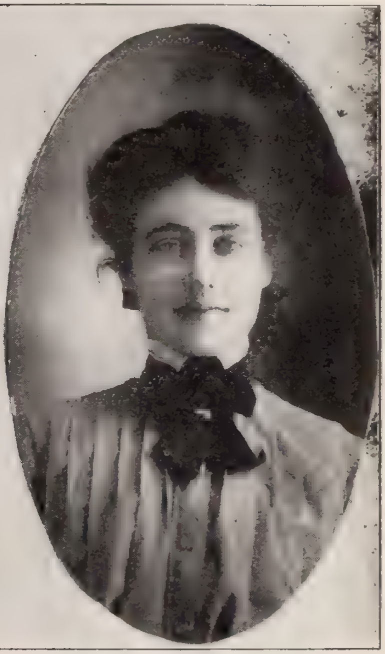

Fig. 9

do not realize the deformity. The dentist should know and also have an ideal of what that face should be and know what to do to bring it up to its ideal shape. It will not be foreign to the subject matter of the paper if you are shown here a case where this very thing occurred. It is by no means an isolated case. (Figs. 5-6). These speak for themselves and no remarks are necessary except to say that in Fig. 6 the white card shown outside the models outlines the ideal arch. You can see how far short the arches come from filling the pattern, and that, too, when the spaces are not all obliterated. We gather facts better usually when the "eye gate helps the ear gate," so look at just one more case that emphasizes the necessity of proper diagnosis in mal-occlusion. (Fig. 7). Here the one who attempted to regulate made the mistake of supposing that the jaws were in normal relations. Originally the upper incisors protruded. The first bicuspids above and the right lower first bicuspid were extracted and the anterior teeth were drawn back to fill the space giving the hooked effect to the incisors and not remedying the defective chin. The patient is now twenty-three and a school teacher and very sensitive about her appearance. (Figs. 8-9).

The time is not far distant when a dentist would no more think of extracting a tooth than he would of amputating a limb.

Just a word in closing: get the ideal occlusion in mind. Look for mal-occlusion in all the little patients that present for regular work. If present, put the teeth into normal occlusion or get the patient in touch with some one who can, and be well satisfied that you can do them no greater service. The pride that they will take in a regular and beautiful set of teeth will do more to stimulate the patient to care for them than all the preaching about cleanliness.

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DESENSITIZING THE PULP BY THE USE OF COCAINE.*

BY W. T. STOOKSBERRY, EAST PALESTINE, OHIO.

In presenting this paper to the Odontological Society, I will endeavor to present a few thoughts in regard to cocaine and its use in desensitizing and anaesthetizing the nerves in the teeth Cocaine is the drug used, and it has been one of the great discoveries to the dental profession, and its use is becoming greater every day.

We will class the different conditions for its use under five heads:

First, we will use it in pressure anaesthesia in desensitizing the nerve in cavity preparation. This is done with a syringe of great pressure, made especially for the purpose; and there are several on the market, and each has its good points.

There is no doubt but the syringe with cocaine will do the work, and do it painlessly. I use pure cocaine crystals made in solution of about 4 per cent., and with it I put two or three drops of adrenalin chloride to each syringeful. With the addition of adrenalin it makes the operation bloodless, if you want to extract the nerve. Parke Davis & Co. make a tablet for pressure anaesthesia that is all right. Do not wipe out the cavity with carbolic acid, creasote, or any oily substance, as it will fill up the tubuli of the dentine and prevent solution from passing through, as it should. The making of the operation successful is in having the contact complete, and it requires some experience. The part of the tooth that I get the best results from is just through the enamel—that is where the nerves terminate. Any part of the tooth after the enamel is removed, will answer the purpose. The time required to anaesthetize a tooth will vary from thirty seconds to two or three minutes; afterwards you can prepare your cavity painlessly. If you want to remove the pulp, now is the time to operate.

The second class are teeth that the pulps have been exposed accidentally or on purpose. In this class of cases I discard the use of the high-pressure syringe for an ordinary dental hypodermic syringe. We use the same solution as in class one, although the local anaesthetic solution that you use for extraction will do the work, but add the adrenalin chloride. Then, before inserting the needle, use cocaine on a small piece of cotton, and on top of the cotton place a piece of unvulcanized rubber. Then make pressure for a few seconds, when you can insert the needle point with very little, if any pain. Then inject your solution. You are now ready to extract your nerve, and do it painlessly in almost every case.

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*Read before the Odontological Society of Western Pennsylvania.

Third class, Acute Exposure. This is where the nerve is exposed, but not congested to the extent that the circulation has been interfered with. In this class the same treatment can be pursued as in class second.

Class fourth, Chronic Exposure. This is the class that gives the operator more trouble than all the other classes—caused by the congested pulp. It is almost impossible to get the cocaine in the circulation. Of course, you can inject the solution, but it is a painful operation, and not satisfactory to either operator or patient. In this class I resort to the old method of arsenical paste.

Class fifth. In this class the nerve is partly dead and suppuration has taken place to some extent. After the dead matter has been taken out I thoroughly clean by using hydrogen peroxid. You will find that the part of the nerve that is left is not very sensitive, and you can inject your solution in the exposed part with very little pain.

PRACTICAL POINTS IN PORCELAIN*

E. H. SHANNON, D. D. S., CLEVELAND, OHIO.

It is not as easy to write on a subject as broad as "Practical Points in Porcelain" as one might imagine. The difficulty lies in the wide scope of the subject and the innumerable little things that are all important in the successful manipulation of porcelain. Realizing the importance and scope of the subject, I have decided to confine myself to a description of only a few helpful points:

You are all familiar with the general methods of forming the matrix, but in those cervical cavities that extend beyond the free margin of the gum you will have some difficulty in obtaining a perfect matrix, unless you resort to a different method than the one ordinarily used in obtaining the matrix. In order to overcome this difficulty, I cut the platinum so that the cervical end is almost a half circle, so I can force it under the gum. Then slightly bend the platinum so it will be convex mesio-distally. The platinum will now conform to the neck of the tooth and can be easily forced under the free margin of the gum. By constant upward pressing on the lower edge, so it will not be drawn away from the cervical placement, you gently work it into the cavity until that portion is well seated, holding the same by a small pledget of cotton under a suitable instrument, being careful not to displace the matrix. The burnishing can then be completed in the usual manner.

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*Read before the Ohio State Dental Society, December, 1906.

In burnishing the platinum you will find the ordinary steel burnisher harsh, especially so if the steel comes in contact with the platinum. In place of steel, I use gold-tipped burnishers, designed by Dr. Woodbury, which can readily be made in any shape you wish. To make them, take an old excavator and bend the shank to any angle you desire. Then melt a small ball of pure gold. Flux the steel and press the end of the steel into the small globule of molten gold, allow it to cool, and then you can disc it to any size and shape you prefer. Some of the most serviceable instruments I have for burnishing matrices are those which I have tipped with gold and then shaped to resemble an inverted pyramid. This style of burnisher is especially helpful because you can obtain decided angles in your matrix, when your cavity has been prepared with flat walls and right angles.

After having obtained a perfect matrix, it is essential to retain that matrix in its original form. In order to do this you must have a suitable pair of pliers or forceps to grasp and hold the matrix, while you are placing and moulding the porcelain in it. If you will secure a pair of ordinary artery forceps used by surgeons, grind the serrations off the beaks, and grind the sides of the beaks until they are narrow, you will have a most excellent instrument for securely holding the matrix.

If you use powdered silex as a foundation to rest the platinum matrix on during the progress of baking, you will find it unnecessary to reburnish the matrix after the first or any subsequent baking. In fact, I would prefer to be more emphatic and say, never reburnish the matrix after the first baking if you want to obtain good, well-defined margins. I do not hesitate in making this statement, although I know there are some who will disagree with me.

Here is a suggestion that might be of value to some of the members who have just begun to use porcelain. It is this: In baking the enamel, do not allow the first baking to reach the required temperature to secure a perfect glaze. If you do obtain a perfect glaze in your first baking, you are very apt to over-fuse when you bring the second baking to a perfect glaze. With this suggestion I would also like to remark that in using porcelain that fuses at different temperatures, that better results can be obtained by not allowing the first porcelain to become glazed, but by having it rough it will present a better surface for the attachment of the succeeding porcelain.

In the construction of an all-porcelain crown, made from a platinum base, it is of utmost importance to procure a perfect adaptation of the platinum to the end of the root. To assist me in securing an accurate adaptation I employ the following method: The root having been prepared as desired, I take a stick of modeling compound or Dentalac, about an inch to an inch and a quarter in length, about as thick as an ordinary lead pencil, and having one end tapering like the sharpened end of a pencil. Thoroughly chill the compound, then heat the sharpened end slightly over a flame, and immediately place it over the end of the root and press it firmly. You will secure a very sharp and a very defined impression. Now place some mouldine in a rubber cup, about half full, press the compound stick impression into the mouldine. Into the mouldine pour Mellote's metal. After cooling, paint the die with whiting in alcohol, and pour up a counterdie. Now you can swage the platinum. Trim closely to the defined margins and return matrix to end of root, and with a very little burnishing you will have a perfect fit.

The furnace has many invaluable uses other than constructing inlays. For instance, a porcelain tooth may be modified to any form desired by adding more porcelain. A great many times you will find it impossible to secure a stock tooth that will fill the conditions in all respects. By a slight addition of porcelain here and there you can change the tooth to suit every condition, and at the same time modify the shape if necessary.

Not long ago I was fitting a Whiteside porcelain crown to a cuspid. Out of a great number of teeth I had to select from, it was the only one that would match the other teeth in shade and size, especially in shade. I had the tooth ground to fit the end of the root and had it ready for setting except to correct the occlusion on the basilar ridge. I knew it was a trifle high, so I placed the crown on the root, asked the gentleman to close his teeth (the gentleman is the proud possessor of a massive jaw), and when I asked him to close his teeth he did so with a vengeance. The tooth was just high enough to receive the full force, which was very disastrous to the crown, as it broke the crown mesio-distally. After complimenting the gentleman on his power of mastication, I proceeded to restore the defaced crown by fusing porcelain to it and entirely restoring the broken part, thereby securing as perfect an adaptation as I had before.

Porcelain is occupying such an important, yet such a small, place in the up-to-date practice of dentistry that the progressive man is looking for the best methods to secure the best results in doing trying and exacting operations. With this object in view, I have presented the few points in the use of porcelain, hoping thereby to assist a small number of men to overcome some of the difficult things in its manipulation. To have done this will be sufficient reward for my humble effort.

SOME PRACTICAL SUGGESTIONS*

BY E. C. SHERMAN, D. D. S., COLUMBUS, OHIO.

In presenting for your consideration a few practical suggestions which are of benefit in everyday practice, I will first call your attention to the use of compressed seaweed as a medium for separating natural teeth, previous to the insertion of a filling involving the approximal surface.

It seems to me that next in importance to extension for prevention of decay is the restoration to proper contour and point of contact of the approximal surfaces of the natural teeth. Where decay involves these surfaces it is very essential to obtain separation of the teeth involved, whether they are to be restored with gold, porcelain or amalgam.

Many patients are using toothpicks by the score to free the particles of food debris which lodge between the teeth that have been previously filled without first obtaining sufficient separation. As a consequence of this continual picking, the interstitial tissue becomes irritated and recedes or sloughs, leaving a larger cavity for the accumulation of particles of food to the greater annoyance of the patient.

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*Read before the Ohio State Dental Society, December, 1906.

Whereas sufficient separation being obtained, the filling may be inserted and finished properly contoured. The space remaining, which may be the thickness of a polishing strip, is obliterated when the teeth assume their normal position. Hence there is no room between the teeth for the encroachment of particles of food to irritate the gum tissue. Compressed seaweed may be obtained of most druggists; it comes in the form of a hard, dense substance of cylinder form, and is known as seaweed tents. These tents may be sawed into cross sections, according to the width you may desire, and then again cut into convenient sizes, which may be inserted into the cavity and allowed to remain from 15 to 48 hours, which is sufficient time to obtain the necessary separation.

These pieces of seaweed that are to be placed into the cavity should be just large enough so that they may be inserted under gentle pressure, and so placed that the grain may correspond with the long axis of the tooth, the seaweed swelling laterally about two and one-half times its original bulk.

Where the cavity is deep-seated it may first be lined with temporary stopping before inserting the seaweed, so as to prevent pressure, and consequent pain. Seaweed is especially useful in obtaining separation for porcelain inlay work, where a greater amount of separation may be required.

Not only will seaweed be obtained in cylinder form, but I hope that there will be placed upon the market seaweed in ribbon form, in various thicknesses, which I believe will in time supplant the use of cotton tape as a separating medium.

Some of the good points of compressed seaweed are as follows: It is easy to apply, expands very gradually, does not absorb food particles, and consequently does not get foul or taste disagreeable. If properly used, does not make the teeth sore. Can obtain sufficient separation over night in the majority of cases. It is the most agreeable separating medium from a patient's standpoint, and the most satisfactory agent for the separation of the teeth that I have ever used.

Mechanical separators, wooden wedges, rubber and cotton tape will be relegated to the past when once you have given seaweed a thorough trial, and your patients will thank you for it.

INVISIBLE ATTACHMENTS FOR BRIDGE-WORK.

A second suggestion, which I think very practical, is the use of invisible attachments for bridge-work, instead of sacrificing the good crowns of the anterior teeth, especially the cuspids, to make way for a Richmond crown.

The invisible attachment properly made makes a much stronger abutment for a bridge than a Richmond crown, and it seems almost criminal to sacrifice the crown of a good tooth when it can be utilized for the purpose of attachment, thereby preserving the natural appearance, which it would *be impossible to restore* artificially.

With the invisible attachment it is necessary to remove the pulp, that there may be inserted into the enlarged root canal a heavy platino-iridium post.

In no case use platinoid for post material, as it will in time discolor the teeth and make them very unsightly in appearance.

The next step, after the pulp has been removed, is to grind the lingual surface so as to allow for a good heavy reinforcement of solder for strength and to restore the tooth to its normal shape.

The contour on both mesial and distal surface is removed, an impression is then taken of the tooth in plaster of Paris, and a die poured with Mellote's metal. When cool cut away at the cervical margin of the die obtained about one-sixteenth of an inch, which is to correspond with the gold that is to extend underneath the free margin of the gum. Over the die place a triangular piece of pure gold about 32-gauge, bend the gold over the occlusal surface and swage the same into the end of a soft pine block. You will find this a quick method of obtaining adaptation of the gold which is to form the base of the invisible attachment. That portion, which is to protect the approximal surface, should extend beyond the point of contact. The contour on the approximal surface is restored with 22-k. gold solder. Place the gold on the tooth in the mouth, push the post through to its proper place, remove and solder, reinforce lingually when the bridge is soldered.

The points which I wish to bring out especially are as follows: The value of a good natural tooth over one that is artificial. Swage the pure gold instead of adapting it with automatic pluggers or burnishers, as I know some do. Cut away enough of the tooth lingually so as to allow for a good heavy reinforcement, extend the gold on the approximal surfaces from between the teeth and restore contour with 22-k. solder.

CEMENT AS A MODEL ON WHICH TO SWAGE MATRIX FOR GOLD INLAY.

A third suggestion which may appeal to you after you have once tried it is the use of cement for obtaining a model upon which to swage pure gold to be used as a matrix for a gold inlay.

When the cavity is properly prepared for a gold inlay, take the impression in Dentalac, or better still, Detroit Modeling Compound; allow it to thoroughly harden, remove it, and into the impression obtained pack cement which has been mixed rather stiff. You will find it far easier to obtain a good, clear cut model with cement than you will with amalgam or a fusible alloy. The cement model is then placed in the Coate's, or a similar swaging device, pure gold about 32-gauge and the size required, is placed over the cement model, and the top portion containing the vulcanite rubber is placed over the same and driven to place. The gold will be found very closely adapted to the model; it is then removed and inserted into the cavity of the corresponding tooth in the mouth, and a final burnishing is given it after which one may proceed in the usual way to make either a hollow or solid gold inlay as desired, preferably the former.

I do not claim originality for these suggestions, but merely present them because they have been helpful to me, and I trust they have been, or will be, as much so to you.

PROPHYLAXIS.*

BY WM. H. VAN DEMAN, D. D. S., D. D. SC., TOLEDO, OHIO.

When I received Doctor Whitslar's letter asking for a "short paper on some practical points," I felt I must not lose the opportunity of urging again that most necessary and wholly practical subject, Prophylaxis, or Preventive Dentistry. There is absolutely nothing impractical or theoretical about prophylaxis. I am sure that no one who has conscientiously carried out this treatment for any length of time can desire anything more positive, practical and convincing. I firmly believe that no one thing can do as much for the comfort of the human race—and to prolong life itself—as clean, healthy teeth, gums, and mouth.

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*Read before the Ohio State Dental Society, December 4, 1906.

We must remember that food cannot be well masticated with diseased teeth and gums, and if the food is passed into the stomach unmasticated, we are bound to have alimentary disturbances in time. Then, too, think of the colonies of bacteria that are incorporated with the food in a diseased mouth, and passed into the stomach and intestines! Not only are the tissues so disorganized, but the secretions and excretions. We note especially the action upon the saliva—it becomes vitiated and charged with agents destructive to the teeth. When one thinks along this line he is appalled at the apathy of our profession. The one great thing which we should have been doing all these years has been left undone, or at best only partially done. We have filled, extended, crowned, bridged, and done everything we could do by way of patching up. Have then dismissed our patients with possibly a hurried "cleaning," and the thought, in our minds at least, that we had really performed a good service.

What would we think of a physician who would keep his patient in an infected and unsanitary room? We have been sleeping —no wonder the medical profession has been prone to frown upon us; but thanks to such men as Doctor D. D. Smith, Doctor C. M. Wright, Doctor E. B. Spalding, and others, we are being aroused, and ere long the dentist who is not urging and insisting upon preventive measures will be thought culpable.

Listen to the testimony of some of these men: Doctor Smith says: "It matters not whether decay is due to bacteria, to acids, to electrical conditions, or to all in combination, the control of decay is wholly dependent upon the control exercised over environmental conditions. This is no longer a theory, for practical operations in the mouth, in scores of cases extending over seven years of experimentation have fully proven the power of environment in the induction of decay, and the feasibility of its control has been clearly demonstrated. As the destroying agent is always external to the tooth, the one effectual bar to the beginning of decay is systematic, forcible change of tooth environment from bad to good."

Doctor C. M. Wright has said: "There can be no question that dentistry is founded upon hygiene. From the beginning it has been held that clean teeth are far less liable to disease than neglected ones, and yet the dental profession has slighted a fundadamental operation in prevention, and devoted itself to more attractive and ingenious methods of cure and partial prevention."

Doctor E. B. Spalding writes: "As to specific results obtained in carrying out oral prophylaxis, we find that it does prevent decay of the teeth, gingivitis, and pyorrhea alveolaris, and will cure most cases of pyorrhea if not advanced too far."

If these men are honest in their statements—and we know they are—why is the profession so slow to adopt their methods of treatment?

I have been carrying out this work in the mouths of a number of patients, and have fully satisfied myself that there can be no exaggeration of the benefits of such treatment to the patient. It is not easy work, in fact it is exceedingly exacting, and requires great perseverance. It is, many times, quite difficult to arouse the patient and to get his co-operation, a thing we must have; but by keeping everlastingly at him, and by showing him his shortcomings, one seldom fails to inspire real appreciation, and in most cases enthusiasm. Do not be easily discouraged with these cases. It has taken years to bring about the condition, and we should not expect a cure in a few months.

We must have sufficient compensation for this work. If we underestimate the value of the service, by charging less than for any other, we will let the work for which we can get most take precedence and thereby neglect prophylaxis. Then, too, we lower the importance of the work in the patient's estimation.

To practice prophylaxis means fewer patients under our care, but those better cared for; more conscientious service in every operation; mouths beautifully kept; regularly treated, and practically immune to decay.

If only every member of this society would go home with the determination to practice preventive dentistry, in spite of every seeming obstacle, what a grand thing it would be for the people of our state, and how soon would our profession be called "blessed!"

In my judgment, the following are requisites for the successful practice of prophylaxis:

Be convinced of the importance of prophylaxis by knowing the difference in feeling in a perfectly clean mouth and one partially so, and by experiencing the benefits of such a condition.

Insist upon a rigid systematic course of treatment and be conscientiously thorough—which includes the boiling of every instrument used.

Have convincing arguments for your patients as to the necessity for such treatment and their co-operation.

Receive sufficient remuneration to enable you to put your very best energies into your service.

May we not read "Prophylaxis" in these words of Tennyson?:

> "It was my duty to have loved the highest;
> It surely was my profit had I known;
> It would have been my pleasure had I seen."

A METHOD OF MAKING A GOLD INLAY*

BY HENRY BARNES, M. D., CLEVELAND, OHIO.

It is sufficient to say, for cavity preparation, that there are two important mechanical principles to be observed: First, that the cavity preparation must provide a sufficient draft to provide for the easy withdrawal of the matrix from the cavity. Second, sufficient anchorage must be made to withstand the strain of mastication, and provide firm retention of the inlay within the cavity. When the first is not possible cement may be used to fill deep undercuts or pits caused by decay. The cavity being prepared, take a platinum foil one and one-half thousands gauge or fifteen ten-thousandths. This gives a matrix with much more stiffness and rigidity than can be made by the one-thousandths gauge. Cut piece large enough to cover bottom of cavity, and extend well over margins. Now have suitably prepared sticks, pine or other wood, six or eight inches in length, shaped at one end to fit the cavity, gently force platinum into the cavity with the stick, rubbing the same over all surfaces, allowing the foil to fold over margins if necessary. Burnish well into place, and over margins. Remove matrix and anneal, replacing same in cavity, and do as before. Do this until the matrix is fairly well in place. Now take uncured red label rubber, which is the rubber used to label the ordinary rubber garden hose, and cut piece large enough to fill cavity, and much more, then direct patient to close teeth upon same, forcing down upon it for a few minutes, and kneading the rubber between the teeth, care being taken to caution the patient never to remove the teeth from contact with the rubber, as the matrix may be withdrawn and spoilt; have patient carefully open the jaws, holding your finger upon the rubber, and remove rubber and matrix. The matrix may be broken in places, but if this is not over the margins no harm is done. Place matrix on charcoal block, and have pure gold plate cut into pieces, two or three of which place in matrix; if matrix is broken in body of cavity, melt one or two pieces of gold into a ball, and place same over break, sweating same into matrix, build up piece by piece, but do not at any time use large flame, as the secret of success is in sweating the gold into place, otherwise you will flow your gold over the outside.

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*Clinic given at Ohio State Dental Society, December, 1906.

The inlay unfinished may be tried in the cavity at any time to determine the exact amount of gold required. No investment is used; nothing to prevent the gold from flowing on reverse side of matrix or elsewhere; no borax is used, except at times, as in sweating you may not flow your gold sufficiently well over margins, in which case a tooth pick is dipped in vaseline borax, and a film is spread over margin desired to be covered; very small pieces of gold may be used for this purpose. If you have followed the technique you will have a gold inlay about the exact shape desired. The inlay being of pure gold, its margins may be burnished into place before and after setting, a very strong point in favor of pure gold.

A BASE FOR A RICHMOND CROWN.*

BY JAMES E. BOYD, D. D. S., CINCINNATI, OHIO.

This crown base was intended for porcelain, but can be used equally well for gold. First prepare the root in the usual way, except in front, when you cut it sufficiently short to allow the gum to entirely cover the joint. Prepare the canal to receive a Logan crown pin, making it fit perfectly, so that it will require some force to remove it.

Then take a piece of platinum plate (33 gauge) sufficiently large to extend over the margin of the root, to bend down to make the band, punch a hole near the center and force the pin through it and burnish until it conforms to the exposed end of the root, having the pin in position; remove them both together and solder with pure gold. Then put it back in position, and with a large plugger in the automatic drive the platinum disk down against the root until you have outlined the exact size of the root on the under side of the disk; remove, and with a pair of plate shears cut a number of slits from the periphery of the disk to the outline of the root, and with a small pair of flat-nosed pliers bend the slit edge of the disk to form the band, allowing the slits to overlap each other. Place it back in position, and with a large foot plugger in the automatic drive the partially formed band close around the root, remove again, and with a wheel on the engine grind the overlapped edge of the band to a feather edge. Then take a strip of platinum plate (36 gauge) just as wide as you are making the band, and with a pair of pliers hold the center of the strip against the palatine or back portion of the feather-edge band, and solder together at that point with pure gold; then with the fingers press the ends of the strip down close around the sides of the band, holding in position while soldering. This strip and gold not only reinforce, but restore the lost form of the root, and when properly executed make a perfect-fitting base for a crown.

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*Clinic at Ohio State Dental Society, December, 1906.

EXCHANGE OF PRACTICAL IDEAS

A FEW PRACTICAL IDEAS.

BY A. D. BARBER, D. D. S., OGDEN, UTAH.

In the April number of THE SUMMARY was described a method of putting a flexible rubber border on a plate. I think my method simpler, viz.: See to it that the trial-bite plate is trimmed so that the plate will not infringe on any muscles. Wax, invest, pack the regular vulcanite rubber and close the flask tightly in hot water; cool and separate. Trim away with sharp knife all excess rubber that has forced out and scrape a very shallow groove all around the margin on the model. Then place a narrow strip of palate or flexible rubber all around the rim of the regular vulcanite, to correspond to the groove; close flask and vulcanize in usual manner. If properly prepared previous to investing, it will not be necessary to trim the edge.

TO REPLACE TOOTH ON TEMPORARY PLATE.

Having occasion to replace a tooth on a temporary plate, I did not wish to be put to the trouble of vulcanizing, so I repaired it with oxyphosphate cement, with which I mixed a very little rouge. The color can be altered to suit.

A RELIABLE COCAINE PREPARATION.

My experience having proven that none of the cocaine solutions on the market or elsewhere are reliable, as cocaine rapidly deteriorates when in solution, I have used with excellent results a one to two per cent. solution of phenol sodique, adding to a syringeful, a 1-6 gr. tablet of cocaine. This I have found more effective than any solutions that have stood for an indefinite length of time.

TO CLEAN CEMENT SLAB.

To clean the cement from a glass slab, dip a pellet of cotton in your 25 per cent. sulphuric acid and wipe over the surface; then wash it off clean.

HOW TO GRIND AN ORDINARY SEAMLESS HYPODERMIC NEEDLE SO AS TO MAKE "CONTACT EASY" IN HIGH-PRESSURE ANESTHESIA.

BY ROSS PORTER, D. D. S., OIL CITY, PA.

The following method, demonstrated at the recent meeting of the Odontological Society of Western Pennsylvania, has been of service to me, and I hope it may be to others:

Take a seamless hypodermic needle, leave wire in, and grind point off square about 1-16 in. from reinforcement, and smooth off on oil stone, remove wire and gently ream out end of needle with smooth nerve broach, and again gently smooth off on oil stone, then round point just enough to take off sharp edge.

Then smooth off shoulder on other end of needle, on oil stone, or you may have trouble in keeping packing tight.

The drill is a little more difficult to grind, but with a little patience any dentist can make one.

Take an old bur, about No. 2 or 3, one that has smallest part of shank a little larger than needle.

Place dentimeter or pin vise on flat part of shaft at right angles to bur. Take bur, with pin vise attached, in left hand, bur lying horizontal with point away from you, and pin vise vertical.

With carborundum wheel in engine grind bur flat some distance up from end; turn half round and flatten the opposite side, and make rather thin; then give bur one-fourth turn and grind edge down, and give one-half turn and grind opposite edge, making drill about the proper size.

Without releasing from pin vise smooth all ground surfaces on oil stone, remove pin vise and give spear point on oil stone.

Drill pit in extracted tooth and try needle as test for size of drill. If needle goes in tight and still leaks, the drill is a little too large, or needle is defective.

Note that the principle is side contact between needle and walls of pin tooth, the needle being held in tooth by friction so that it requires some force to pull it out.

Next take another needle and grind in the same way, except to leave point about ¼ in. long from reinforcement; this will be more easily broken than the first, but will reach many places that the shorter point will not.

TWO SUGGESTIONS.

BY W. T. STOOKSBERRY, E. PALESTINE, OHIO.

In finishing Aerdentalloy plate use the Ideal Emery Cloth Arbor. You will be surprised how quickly and evenly you can do the work. This is far better than scrapers and sandpaper.

The next time your soldering ring needs refilling, just fill it up with plaster and dry out, and you have got the best one you ever had.

REMOVAL OF BROKEN PINS FROM ROOTS.

F. J. MOYER, JR., D. D. S., LOCKPORT, N. Y.

Instead of taking small burs, etc., and drilling around the pin, I simply take an old worn-out bur, size suitable for the case, and construct a drill by flattening out bur. Place same in engine and proceed to drill up through center of pin. This method will be found much easier and quicker than any I know about.

AN INTERESTING CASE.

BY E. A. RAFFENSPERGER, D. D. S., MARION, OHIO.

Several weeks ago a man about 40 years of age consulted me concerning a severe pain on the right side of the superior maxilla, in the region of the molars; said the pain would shoot over the right side of the face, and up into the eye.

On examination, I found the second and third molars had recently been extracted, in fact only a few days; the gums did not seem in the least swollen or inflamed, and my first thought was that possibly a broken-off root was causing the trouble. On stating this to the patient, he took the teeth that had been extracted, out of his pocket, and I saw they were not only not broken, but were absolutely sound and perfect. I asked why they had been extracted, and was told that it was to get rid of this same pain he still had.

I then made a more thorough examination, but could not find anything abnormal; the sight of the left eye had recently been lost by a flying piece of steel, and it occurred to me that possibly the pain was reflex in character, and that the eye had something to do with it, so I referred the man to an eye specialist, with the request that his refraction be thoroughly gone over; on this being done, it was found the man had a very pronounced case of astigmatism, probably being aggravated by the loss of the other eye. A glass of the proper correction was fitted, and since there has been no return of the pain in the jaws or face.

SUPPURATION OF THE MAXILLARY SINUS.

BY B. G. WOOD, D. D. S., SANDWICH, ILL.

Patient presented complaining of pain and pressure in the region of the buccal roots of the upper right first molar and of a discharge into the mouth apparently from an abscess. Examination revealed a sinus leading from the maxillary sinus through the socket of the mesio-buccal root of the second molar, and on questioning patient, found that the second molar had been extracted twelve years previous, and no trouble had been noticed since until the present time. Patient in apparently good health, though troubled slightly with nasal catarrh, and the antro-nasal opening found to be closed. After preparing the patient and cleaning the local parts with a solution of borated cassia, I injected a 2 per cent. solution of cocaine into the antrum. I then irrigated with a warm normal salt solution and removed a large quantity of decayed tissue, using the curved curette and again using the warm salt solution.

Acting on Dr. Gilmer's statement, "I am of the opinion that catarrhal inflammations are the most common cause of engorgements and suppurations of the antrum of Highmore," I irrigated with a 10 per cent. solution of Argyrol (formed by mixing the crystals with glycerine and adding distilled water), which is claimed to be almost a specific in catarrhal diseases. I then packed the cavity with iodoform gauze, and further treatment consisted of irrigation and packing, as stated.

The cavity is now filling nicely, with no recurrent pus, due to the action of the Argyrol. While these cases do not often appear for treatment in a country practice, I think it well to be as familiar as possible with the method of operation and the medication.

COMPILATIONS

THE INDISCRIMINATE DESTRUCTION OF TOOTH PULPS.*

BY W. A. L. KNOWLES, M. D., D. D. S.

The biblical injunction, "Thou shalt not kill," has great significance in its application to the brain and spinal cord of the tooth, to use such a simile.

The dental pulp is the remains of the formative organ and its principal function after tooth completion seems to be the support, innervation and repair of tooth material, principally as applied to condensation of structure and deposition of so-called secondary dentine.

Nature in her wisdom provided for dental repair under certain circumstances. She has not recognized the liability of dental caries, but has made provision for repair of structure when such a destruction was caused by normal abrasion from legitimate use.

This is a precaution on her part, similar to the provision made for the repair of bones; she, recognizing the liability of fracture or injury, has created and kept in reserve certain cells whose function it is to act in case of injury. These cells may never be called into requisition, but provision has been made in case of necessity arising for their use.

The dental repair by secondary deposit is most clearly shown in the rodentia, whose teeth are of perpetual growth, keeping pace with the rate of normal abrasion.

Nature has made a somewhat similar provision in man, limited, however, to deposition of calcareous material on the periphery of the pulp chamber, gradually filling inwardly until partial or even complete obliteration of the pulp chamber and nerve canals may occur. Having made this provision against normal abrasion, nature still, but in a lesser degree in certain cases, attempts to repair loss of tooth structure when caused by something outside of normal abrasion. Thus, in fracture or caries the same process is set up with varying degrees of success.

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*Read before the San Francisco Dental Association, March, 1907.

Tooth repair is a slow process, intended primarily to compensate for normal abrasion, which is also slow. More rapid or sudden losses of tooth structure induce an attempt at repair in some degree, more or less effectual. Caries being a more rapid process than normal abrasion, while it causes an attempt on the part of nature to build a barrier of secondary dentine against its encroachment, will only be effectual when the pulp irritation produced by such caries is stopped or greatly retarded, for the reason that caries being so rapid soon reaches the point of attempted repair and attacks and destroys it, laying bare and producing injury to the dental pulp. Thus a temporary filling of a non-conducting material inserted in such a carious cavity or a similar protective covering to an injury, fracture or sudden abrasion, will allow the reparative force to act without opposition, and such a tooth, after a period of several months, will be found to have protected the pulp by a condensation of structure lying between the pulp and point of injury through a deposition of secondary dentine of sufficient thickness to itself act as a non-conductor and perfect preservative formation.

Bearing this in mind, the first objection to the destruction of a tooth pulp will be found in the fact that nutrition and capability of repair in such a tooth is forever thereafter rendered impossible. Thus a tooth which, under natural circumstances, has a probability of life as long as the bodily life of its possessor, has, by means of this pulp destruction, a limit placed upon its life and period of usefulness.

The claim made by some that with the complete formation of an adult tooth the necessity for the continued existence of the pulp has vanished, is untenable in the light of the foregoing statements. Such persons base their actions in destroying pulps under various pretexts, upon this idea of cessation of necessity, but it is not borne out by the facts. A tooth in which the life of the pulp has ceased will, after extraction, always be found to have a disagreeable odor, due to the presence of dead tissue. It is absolutely impossible to thoroughly and completely sterilize that portion of the dentine lying in the territory between the pulp chamber and nerve canal in the interior and the enamel and cementum on the exterior. The canaliculi, being infiitesimal, cannot be deprived of their organic contents nor can such portions be rendered aseptic, hence they always remain, to some extent, at least, a source of danger.

It is quite true that immediate filling of pulp chamber and canal, following upon the removal of a reasonably healthy pulp and nerve, before infection has occurred, is often successful as far as undesirable after-results are concerned; and it is also true that quiescence and a long period of usefulness may ensue, even after tooth tissues and alveolar surroundings have been infected, owing to successful antiseptic treatment of the parts concerned. But we must remember the fact that where undesirable and even dangerous conditions are found, it is always in cases where the vitality of the pulp has been lost. A vital tooth does not cause alveolar abscess, the nearest approach to this condition being the false or superficial abscess usually connected with pyorrhoea.

The most ruthless destruction of pulps has been by dentists who favor crowns and bridges in the restoration of the dental arch to a condition of utility and beauty. Many claim that a shell crown should never be placed over a tooth containing a live pulp, whether used singly or as a point of bridge anchorage.

Porcelain crowns surmounting teeth used for piers are made stronger by utilizing the full root, and under such circumstances the life of the pulp is necessarily sacrificed. Piers bearing porcelain facings are, as a rule, not so reliable so far as strength is concerned, where no pin or dowel enters the root canal. By persons so believing and practicing, the crowns, pulps and nerves of perfectly healthy teeth are sacrificed without hesitation.

An objection to retaining vitality in teeth used as piers is the greater difficulty of successful treatment in case of the death of pulps subsequent to the placing of crowns upon them. The difficulties presenting themselves under such conditions are, however, not insurmountable, even without removal of bridges or crowns. It is simply a question of ease or difficulty in treatment.

From an artistic standpoint, a porcelain substitute is far preferable to a metal crown; but there are ways of placing such porcelain veneers without pulp destruction. The open-face crown, the staple crown, the anchorage by pins, bars and other methods, to adjoining vital teeth may be made use of in many cases. And it certainly seems justifiable to exhaust every resource that ingenuity or experiment may suggest to obviate the necessity of resorting to this devitalizing.

In practice we find many teeth supporting shell crowns, teeth that could have been repaired, made more artistic and given better service if their lost portions had been restored by porcelain, gold or amalgam. It is the carrying to extremes by enthusiastic bridge-workers which does the greatest amount of damage.

The evils which follow pulp destruction are many. If arsenical applications are employed, there is danger in any but the most careful use of this devitalizing agent. Pulp destruction performed with apparently the greatest care may lead to acute alveolar abscess, sometimes degenerating into extremely chronic forms. The development of fistulae, opening sometimes far distant from the point of origin, are not rare. There is often a destruction of a circumscribed portion of the alveolar process, which, in its nature, is a severe and chronic affair.

There is always greater risk in destroying pulps in the superior teeth through the danger of extension of infection to the maxillary sinus, through the anatomical relation of these tooth roots to the antrum. This may be followed, and, in fact, often is, by an extension to the ethmoid, frontal and sphenoid regions, terminating with a septic meningitis or brain abscess. Chronic disease of the antrum of Highmore is a recognized and considerable etiological factor in meningeal and brain infection. Statistics prove that infection of the sinuses is often due to lesions primarily traceable to dental origin.

Many cases of so-called "chronic catarrh" are due to subacute infective processes in the maxillary sinus of dental origin. There are often digestive symptoms and stubborn malnutritions from the continued swallowing of infected material; and the ever-present danger of septicaemia should not be forgotten.

Root corrosion is met with in many cases, those of long standing eventually resulting in an entire loss of the root.

Pulp mummification, quite recently and enthusiastically introduced to the profession, is an unreliable and dangerous process. While its use is legitimate in a few cases of necessitous devitalization where there is great difficulty through their tortuosity in tracing out root canals, its use, by the average practitioner, is not confined as a rule, to such cases alone. It is a lazy operator's method, practiced in order to avoid tedious and disagreeable after-treatment.

Physicians are taught, and universally believe, that a tooth which does not contain a live pulp is a menace. There are many who direct their patients to have all such extracted. There is no other portion of the human economy which will tolerate the presence of dead tissue in contact with living without a marked reaction tending toward encystment. Here the nature of the tissues is such that encystment, if any occurs, is very slow and imperfect. The toleration, in any degree, of a pulpless tooth, is, of course, dependent on the vitality of the peridental membrane. When life in this part ceases necrosis and rejection of the tooth follows.

Another difficulty liable to follow pulp destruction is to treat possible perforations of the root wall. Such accidents often eventuate in the entire loss of the root.

Pulpless teeth become very brittle, there being no tissue nutrition; and the strain upon them, such as comes from a dowel, often causes their fracture.

Pulp destruction is justifiable in case of severe and obstinate neuralgias of dental origin and severe pulpitis; and it is positively indicated in the treatment of obstinate pyorrhoea, in which, though often a last resort, it is many times effectual. If ever, it is here justifiable pulpicide.

In the treatment of a patient ever remember that he is entitled to your best knowledge, and that "Thou art thy brother's keeper."—*Pacific Dental Gazette.*

DIAGNOSIS OF DISEASED OR DEAD TOOTH PULP.

The correct diagnosis of a diseased or dead tooth pulp under certain conditions is still a matter of great difficulty, more so if the tooth externally does not present any visible signs of derangement. A helpful diagnostic aid is the change of color and the diminished transparency of the respective tooth. The electric mouth-lamp frequently furnishes a fairly reliable shadow-picture of a dead tooth pulp, more so in the anterior teeth. In the bicuspids, and especially in the molars, the thick body of the tooth crown prevents ready transillumination, and as a consequence the diagnostic value of the light-rays is much diminished. The heat test is also helpful, but not absolute. Usually the test is made by applying a pellet of heated gutta-percha or some similar material upon the surface of the suspected tooth. A tooth with a dead pulp does not respond in the same manner as a tooth with a normal, living pulp. Existing pulpitis may sometimes be fairly well diagnosed by such tests, however; again, the test is not absolute. Tapping the tooth with a steel instrument is very helpful. Percussion is best performed by striking the tooth with the butt end of an excavator, employing a short, sharp blow. The peculiar dullness of the resulting sound from a tooth with a dead pulp as compared with that from a normal tooth is distinctly noticeable to the trained ear. The dullness of the sound is probably brought about by the inflammatory changes in the peridental membrane resulting from the disturbances of the products from the dead pulp. The infiltration and the thickening of the fibers change the relationship of the tooth and the alveolar bone, and consequently the sound waves produced by the tapping have not that full, clear tone which we perceive from a similar percussion upon a normal tooth. Within recent years the electric current has been introduced for such purposes. The results obtained are most gratifying and deservative of our highest commendation. In 1902 Fuyt, of the University of Utrecht, called attention to this procedure. Since then Haffner, Schroeder, Hess, Frohmann and others have thoroughly tested this method and have worked out a perfect technique which enables us to apply the electric current as a sure diagnostic means in locating the faulty tooth. The apparatus which is necessary for this work is extremely simple. It consists of a suitable reostat for reducing the direct or alternating current so as to produce a very low milliamperage. The ordinary battery current may also be used. The negative pole, in the form of a sponge electrode well saturated with salt water, is held in the hand by the patient, while the positive pole, terminating in a platinum needle, is to be used by the operator. The teeth to be tested must be wet. Care should be taken not to place the needle point too close to the gum line or very near or upon a metal filling. Further, it should be remembered that the thickness of the enamel plays an important part relative to the resistance of the current. It will be found that in teeth with normal pulps the quickest response is furnished by those having the thinnest enamel cover, viz., the lower central incisor. The resistance to the current increases with the thickness of the enamel. Teeth with dead pulps do not respond at all to the current; not the slightest sensation is produced, no matter in what state of necrosis the pulp is found, viz., moist or dry gangrene. The procedure of diagnosing a dead pulp with the aid of the electric current is simple and yet absolutely perfect. It furnishes a most valuable aid for diagnostic purposes in the routine practice of operative dentistry.—*Editorial, Dental Era.*

CAST GOLD INLAYS, TIPS AND PLATES.

F. M. FULKERSON, D. D. S., SEDALIA, MO.

For Inlays: We will suppose that a matrix, preferably of platinum, has been fitted to a properly prepared cavity for an inlay. If there is a fold or two about the margins and a few holes in the bottom of the matrix they will not matter, so the holes do not extend to the margin at any point and the folds are well burnished. Of course the closer the fit of the matrix the better for any inlay. Fill the matrix with cold bees-wax, pressing it in so as to force the platinum to the best adaptation possible to the cavity walls and margins. Use a slight surplus of wax and have the patient bite into it if desired to get the articulation. Chill the wax thoroughly. Remove by inserting a small piece of wire in the wax at the most convenient point. Trim the wax to the exact shape required, seal the margins to the matrix with a warm instrument and try in again. If it is of the desired form remove as before and coat the underside of the matrix with sufficient investment material to support it and allow time for hardening. Now take more investment material and build up around the matrix and wax, leaving a small cone-shaped cavity down to the wax at its highest point. Leave sufficient wax exposed to form a fair-sized opening when the wax is removed.

When the second investment has hardened, trim to a convenient size and shape and burn out the wax. If platinum matrix has been used place pure gold in the cone-shaped depression and heat carefully from below, either in the electric furnace or with a blow-pipe. The gold will readily flow over the platinum. More gold may be added if necessary, after that first placed has fused. The result will be a perfectly-fitting inlay that will need but little polishing.

If a bit of the investment material should drop into the matrix and cause a pit where it would be objectionable, the same can be readily repaired by sweating pure gold into the pit with a blow-pipe, after the inlay is removed from the investment. If it is desired to use gold for a matrix it can be done by using a lower carat for the body of the inlay. In that case a very small amount of flux should be used with the gold.

In making tips for anterior, or cusps for posterior teeth, this is a quick, easy and accurate method. After the end of the tooth is prepared and holes drilled for pins, burnish platinum over the end of the tooth and insert pins through the platinum into the prepared holes, leaving the ends of the pins long enough to catch in the wax. Now contour with wax to the desired form, using stiff wax to force the matrix into perfect adaptation. Remove by inserting a wire into the wax and invest as in the inlay case described above. The investment material will hold the pins in place in relation to the matrix so they will not have to be soldered. Burn out the wax and flow gold into the cavity, engaging the pins and uniting all firmly to the matrix at the same time.

The advantages of this method are that it is quick, easy and accurate, and the materials for doing it are found in every dental office.

While I have not tried it, I believe a gold plate might be made by a similar method, that would be more exact in detail than a rubber plate. The method, in brief, would be as follows: Get a plaster impression, varnish, and place on a flat surface. Build up around the sides with enough plaster to thoroughly strengthen and allow time for complete setting of the plaster. Fit into the impression thin platinum (1-2000 of an inch), just as it is fitted into a cavity in a tooth for an inlay matrix. This could be done with burnishers, wet cotton, soft rubber, soap or anything that will do the work. When it is well fitted into all the irregularities of the impression, and extended over the margins, pour a model of investment material. Separate and the result will be a model covered and accurately fitted with thin platinum. Now cover this with bees-wax to the desired thickness and then cover the wax and sides of the model with investment material to the thickness of ¼ of an inch, leaving three or four long narrow openings along the ridge down to the wax. Build the investment up around these openings to form receptacles for the gold. Burn out the wax, place the gold (in the form of small bars or buttons) in the receptacles and heat from below. The melted gold will flow readily into the space formerly occupied by the wax and will unite with the platinum throughout its surface. Should any defects occur they could be remedied by sweating gold into them with a blowpipe after the piece is removed from the investment. This method would eliminate many difficulties met with in transferring from plaster model to metal die, hammer-swaging, etc., and it would give a plate of the best of materials.—*Western Dental Journal.*

CORRESPONDENCE

IS IT PROFESSIONAL?

"The following resolution has been offered and will be acted on as an amendment to our code of ethics: 'Resolved, That in the opinion of the members of the Second District Dental Society the practice of paying or of receiving any commissions, honorarium or any sort of fee in consideration for the reference of a patient is both unwarrantable and unprofessional, and be it resolved that the payment or reception of any such commission, honorarium or fee by any member of this society shall be sufficient cause for the expulsion of such a member by a vote of the society after proper hearing and conviction. And further be it resolved, that in case of co-operation and the care of the patient between the general practitioner and a specialist, there shall be no division of fees; each man shall render a separate bill for his personal services.' "

Without a reserve, we italicize *NO!* The testimony of those that have the inspiration of truth is prophecy.

In the International Dental Journal of September, 1903, in an article entitled "Looking Backward," we gave a kindly hint that there were indications in some of our societies that showed a tendency to generate an arbitrary spirit similar to that which has become almost malignant among the laboring class. Since the publication of that article, proof has come that showed that we had not spoken amiss; as it is being viewed by many of our most honorable practitioners, this resolution at the head of this article is a definite proof. It is called infamous. It smacks of "Shylock". Righteous liberty is held as sacred by all truth-lovers. We are seeing our national constitutional protection dragged in the mud of political dishonor. Neither party has the courage to meet this injustice to the laboring man, so it seems that we are to be called to face this insult to our much-burdened calling, already quite too heavy to bear with patience, yet we must turn to the heart of our calling, where we will always find the few that are true.

The timely editorial of Dr. Kirk on ethics in the *Cosmos* should be healthy reading to all that are endorsing this misguided movement. We are not going to write at length at this time, but to give an echo to the voices that are giving out a certain sound against a true professional advancement. We are on the eve of professional advancement—it is in the air—based upon definite scientific principles, that cannot be disproved. This may seem like dogmatism, yet don't forget that Truth is of that character.

We are not afraid to say that all our future will be not as a scribe, but of authority. We are, moreover, thinking, but what this kind of backward step may gain a foothold of a forward, but its escutcheon will stand with supreme selfishness branded upon it. This will be sufficient to give a timely warning to all honorable members of our much-loved calling.

"We have the pen of a ready writer," but we defer, that there be a larger expression quickly given.

More anon.

DR. G. ALDEN MILLS.
226 Central Park West
New York City.

April 15, 1907.

SUGGESTIONS

POLISHING DENTURES.

Soap rubbed on a felt buff wheel will retain the wet pumice, causing it to cut much faster and considerably lessening the time and labor of polishing an artificial denture.—*Dental Register.*

REMOVING RICHMOND OR PORCELAIN CROWNS.

C. B. Plattenburg, Chicago.

Use a rubber and corundum wheel that is thin and grind from center of cutting edge down to the root. Then take a large, strong hoe excavator of the obtuse variety and force the porcelain and backing in two. Peel off the band and cap, run a crosswise bur around the pin and the operation is then easily completed.—*Dental Review.*

TO TIP FACINGS WITH GOLD.

C. H. Van Deventer, Herington, Kan.

First use care in grinding the facing, making the length short enough to allow for the gold tip when finished.

The cutting edge should be beveled off at an angle of about forty-five degrees, being careful not to leave a feather-edge of porcelain at the labial surface, as it will chip out when finishing. Proceed as in making any Richmond crown until it is ready for the solder. Take a sharp-pointed instrument and carefully scrape away the investment from the cutting edge until all the surface of the gold backing is cleaned to the labial edge, holding the instrument at right angles to the facing. Take some Keeton-Williams, De Trey's or Francis' gold and pack in the triangular space you have made. Put on a little borax, place the solder and flow as usual. This draws the solder down and leaves the cutting edge protected by a gold surface. If properly done, not enough gold will show to impinge upon the conscience of the most esthetic dentist.—*Western Dental Journal.*

REPAIRING AN AMALGAM FILLING.

W. A. Robertson, Crookston, Minn.

To repair an amalgam filling, dry it thoroughly, freshen the surface and using a little soft amalgam at first, build it as you wish being careful to see that the occlusion does not displace it before it sets. If you doubt this just freshen the surfaces of two old fillings and after allowing it to set try and break the joint.—*Dental Review.*

CHLOROFORM WATER AS A HEMOSTATIC.

This is used by Spaak (*Journ. de Med.,* September 16, 1906), who finds it superior to all other styptics. It acts with marvelous rapidity, has not the slightest disagreeable taste or odor, is not escharotic, is easily obtainable, and can be made as required. It is not unpleasant when applied, and does not interfere with the surgeon in his operations. Spaak recommends a two per cent. simple solution in water.—*Medical Times.*

AN EXCELLENT ANTISEPTIC.

A most useful antiseptic to use for douches, irrigations, etc., is the "liquor cresolis compositus" of the United States Pharmacopeia. It is of the same strength as "lysol" and may be used by those who prefer a non-proprietary preparation. The formula is:

Cresol	500.00
Linseed oil	350.00
Potassium hydroxide	80.00
Water, to make	1000.00

Mix. Mark "Poison." It is about the same strength as carbolic acid. Solutions of 1 to 40 of water are highly germicidal.—*Exchange.*

ANESTHETIZATION OF THE DENTAL PULP IN THE PRESENCE OF PULP-NODULES AND OTHER OBSTINATE CONDITIONS.

G. A. Englert, Catskill.

As a rule, the most extreme tenderness of the dental pulp is at or nearest the point of the lesion. Having attempted once or twice first to fully open, and secondly to anesthetize the pulp at the point of the lesion, but having failed, I then approached the pulp from another flank, *i. e.*, drilling through the enamel and dentine with a double-bevel sharpened No. 1 rose bur. This procedure is less painful than would at first be supposed. Having reached the pulp at such a point, the medicinal preparation is readily absorbed, and the pressure that may be exerted is less painful. One slight application of pressure is often sufficient to enable one to return to the original cavity, which only a moment ago was almost too painful to approach, and to open it painlessly. The medicinal preparation I use is pure cocaine hydrochlorid, crushed and made into a paste by the addition of oil of cloves. This is applied on the pulp, and is followed with cotton saturated with extract of Indian hemp, and the whole is placed under a compress of black unvulcanized rubber. The congestion of the pulp being relieved, I carry up the root, if found necessary, a very mild solution of cocaine, say of one to two per cent. strength.

In this manner you can often obtain relief in stubborn cases of pulpitis, where it is next to impossible to approach the point of the lesion, there being so much debris lying over the pulp as to make any application at that point ineffective. Tapping a tooth can often be resorted to in hyperemia of the pulp, as well as for pericementitis when induced by a gangrenous pulp.—*Dental Cosmos.*

DO NOT USE VARNISH AS A CAVITY LINING.

Dr. J. F. P. Hodson, New York, N. Y.

I have long ago discarded all the varnishes—as in my experience they invariably oxidized and discolored far more than they ever decolored—I have used oxyphosphates instead.

Now, in order to place a thin layer of oxyphosphate on the inside of a cavity whose surface is more or less irregular, one is liable to get it too thick in some places and too thin in others, and if one attempt to trim the cement to an even layer afterward, it is almost impossible to avoid either cutting the layer through or chipping it away entirely in places, and so again uncovering the cavity wall. I have hit upon the idea of applying a blanketed squeeze to the oxyphosphate layer by putting a creamy mixing of quick-setting cement of the proper color on the inside of the side wall—one side is often all that is needed—and very quickly putting a blanket of gold foil, preferably No. 4 ro 6 unannealed, folded upon itself two or three times so that it may blanket the cement absolutely; then taking pellets of cotton of different sized masses and pressing the gold foil with the cement ahead of it strongly against the cavity wall or walls. While the cavity is packed full of the cotton I take a flat burnisher and go around just inside of the edge and make sure that no cement is left there. Taking away the cotton there remains an ideal condition of the cavity. The shape is not at all changed for the holding of the completed filling, and the natural color is restored to the tooth through an evenly spread thin varnish of the oxyphosphate which covers every inequality of the dentine and enamel walls and is placed there under pressure. The effect in the finished operation and through a large surface of translucent enamel is exceedingly artistic. As mentioned, I prefer the several layers of unannealed gold to a single one of corresponding aggregate thickness, because the latter might tear through and spoil the whole scheme, while several layers of the non-cohesive foil sliding upon each other will wholly prevent its doing so.

With quick-setting oxyphosphate one can proceed at once with the gold filling, but if it be desired to wait till another sitting an additional layer or so of gold may be added and the cavity filled with gutta-percha, the extra layer of gold being but to furnish something for the gutta-percha to stick to and pull away, thus leaving intact the lining proper. In lining for color in the case of amalgam fillings I should use tin foil to blanket with, and never gold, as I have found that gold foil so placed under amalgam discolored the tooth afterward, even to blackness.—*Dental Cosmos.*

SOME PRACTICAL HINTS.

H. M. Tweedy, Lebanon, Kan.

Save all the wax scraps and melt them in a large stew-pan containing a gallon or more of clean water. When all the wax is melted allow it to cool and the plaster and other impurities will settle to the bottom of the pan. When cold remove from the pan and scrape the sediment from the bottom of the disc of wax. Break the wax into small pieces and place in a deep gallon bucket containing a quart or more of water to which has been added a half ounce of oxalic acid to the quart. When melted, dip into this wax a round bottle containing cold water and quickly remove it. The bottle should first be dipped into water to prevent the wax adhering to it. A thin film of wax then covers the bottle. Dip into the melted wax as many times as is required to obtain the thickness of wax wanted. Cut off the bottom and split down the sides. Spread the sheet out on some flat surface and allow it to cool thoroughly.—*Western Dental Journal.*

AN EASY AND INEXPENSIVE METHOD OF MAKING AN ACCURATELY-FITTING METAL PLATE, SHOWING VERY LITTLE VULCANITE.

W. C. Trotter, Toronto, Canada.

From a plaster or modeling composition impression of the mouth, make a metal die by pouring with low-fusing alloy (Olivian preferred). On this die quickly swage up a thin piece of gold or aluminum in the Olivian swager, leaving the margins of the plate extended sufficiently beyond the plate line to enable one to fit in a piece of wire around this line, and fold the margin of the metal over it in such a way as to leave jagged attachments here and there for the vulcanite. This gives a beautifully finished margin to the plate, and at the same time provides a ready and strong attachment for the vulcanite, either with gold or aluminum. Now set up the teeth with wax in the ordinary way, and invest the plate in the lower half of the flask. Carefully remove the teeth from the wax so as not to disturb the holes in which they are seated, and then with a ball of soft plaster take an impression of the buccal surface of the plate, including the inside or lingual margins of the wax. Around this plaster impression tightly wrap a piece of stiff paper, and pour the fusible metal; place in the swager and strike up another piece of thin gold or aluminum, which will accurately cover the whole buccal concavity of the plate, fitting in so closely under the projecting lingual edges of the teeth as to show absolutely no vulcanite whatsover, and also so as to hold it firmly in its place. This palatal piece of metal is now stuck down closely to the metal plate with an almost invisible layer of wax, the teeth are set back in their places, and the case is vulcanized and completed as in the usual way.

I claim for this plate considerable strength, cleanliness, smooth and closely-fitting, comfortable margins, and great accuracy and closeness of fit in general, owing to the extreme ease with which this thin metal can be driven into the smallest depression or undercut. The combined thickness of the two layers is not greater than that of the ordinary heavy aluminum or gold plates used in making metal plates. The thin metal is relatively cheap, even using the double layer, as the buccal layer is usually comparatively small.—*Dental Cosmos.*

A QUICK FILTER.

W. J. Foster, Port Huron, Mich.

A nice and quick way to filter water for hypodermic use is to boil the water in a teaspoonful over a common flame, place a small piece of absorbent cotton in the spoon and draw the liquid into the syringe through the cotton. By so doing you get a perfectly clear solution.

A HIGH-POWERED BLOW-PIPE.

H. J. Morris, Sheffield, England.

A blow-pipe of more than ordinary power is not infrequently wanted for repairing dentures with vulcanite attachments without detaching the vulcanite, and for fusing platinum solders, etc.

Mr. Morris showed that this could be easily obtained by attaching the "air-supply" tube of the blow-pipe to a cylinder of N_2O and so obtaining a mixture of gas (coal) and N_2O. With this Mr. Morris obtained a fine flame 2—3 in. long, which melted steel burs in a few seconds.

Mr. Morris preferred the D. M. Co.'s "Autogrip" blow-pipe and N_2O bottles with screw foot-keys, because they are the easiest appliances to control and manipulate. But every dentist possessing a cylinder of N_2O and a blow-pipe can obtain these results.—*British Journal.*

REPAIR OF PORCELAIN INLAYS.

Joseph Head, Philadelphia, Pa.

The method of procedure is as follows:

Cut out the defective line with a small inverted cone, cutting in the direction of the tooth rather than the porcelain. Dry the cavity with alcohol and hot air. Have moss fiber gold, properly annealed, in small pieces, near at hand. Mix some creamy cement, place it in the cut-out groove and squeeze this cement out with suitable pieces of moss fiber gold, being careful to remove all excess of cement. When the cement has set, condense the gold and finish in the usual way with either hand or mallet. If amalgam be used the procedure is practically identical, only the cement is squeezed out with the amalgam instead of gold, and hardened by wafering in the conventional way. And let us note an advantage for this method that has not perhaps been given its just due: When a gold or porcelain filling is cemented into place the entire cement line is just as large as the largest grain of cement powder in the mix. But with gold or amalgam flowing around the few large grains, the cement line becomes almost imperceptible.

The places most likely to need mending, as before stated, are those that receive the direct force of mastication, such as the grinding surfaces of molars and bicuspids. The fillings on the labial aspect of incisors, canines, and bicuspids are not subject to such stress and therefore are not likely to need mending. But with these in a certain prcentage of cases a black line will appear. This, from the very fineness of the cement line, is most difficult to remedy, but it may usually be accomplished in the following way: Put on the rubber dam. Wash the dark line with alcohol and afterward with ammonia; dry with a hot-air blast. Then flow 25 per cent. pyrozone into the darkened fissures and dry instantly with as hot an air-blast as the patient can bear. This will usually render a part of the line white and clean, when the pyrozone can be reapplied and the procedure repeated until the stain has been entirely removed. The line can then be refilled with cement and the filling will be as good as new.

Whn porcelain corners of incisors chip on the cutting edge between the tooth-structure and the filling, leaving a little three-cornered nick, in the vast majority of cases a new filling will give the most satisfaction. But even these nicks can sometimes be cut out from the back and filled as previously described, so that the small amount of gold that shows in front will be invisible from a distance of ten inches. This, from the impressionistic point of view, is all that is necessary; for, as a very bright young lady once said, speaking of the fine gold line, "If any one gets nearer than ten inches, even then he is not likely to see it."—*Dental Cosmos.*

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SOCIETY

COMMENCEMENTS.

Kansas City College, May 9, 15 Graduates; Ohio College of Dental Surgery, May 9, 54 Graduates; New Orleans College of Dentistry, May 14, 30 graduates; St. Louis Dental College, May 10, 37 graduates; Baltimore Medical College, May 21, 21 graduates; State Dental College, Dallas, Texas, May 9, 3 graduates; Southern Dental College, April 26, 40 graduates; Indiana Dental College, May 10, 50 graduates.

WYOMING STATE BOARD OF DENTAL EXAMINERS.

The Wyoming State Board of Dental Examiners will meet at Sheridan, Wyoming, on July 1, 2 and 3, 1907. For examination of candidates, all applications together with a fee of $25.00 must be in the hands of the secretary not later than June 25.

For further information and application blanks address

PETER APPEL, JR., Sec'y,
P. O. Box 643,
Cheyenne, Wyoming.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin will be held Monday, June 10, 1907, at the Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.

Application must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry for four consecutive years, or an apprentice to a reputable dentist for five years.

For further particulars apply to

J. J. WRIGHT, Sec'y,
1218 Wells Bldg. Milwaukee, Wis.

PENNSYLVANIA STATE BOARD OF DENTAL EXAMINERS.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg, June 12-15, 1907.

For application papers and full particulars address

DR. NATHAN C. SCHAEFFER, Sec'y Dental Council,
Harrisburg, Penna.

OHIO STATE BOARD OF DENTAL EXAMINERS.

The regular semi-annual meeting of the Board of Dental Examiners of the State of Ohio will be held in Columbus June 25, 26 and 27, 1907.

Only graduates are eligible to examination.

Application, accompanied by fee ($20.00), should be filed with the secretary, by June 15. For further information address

H. C. BROWN, Sec'y,
185 East State St. Columbus, O.

NEW HAMPSHIRE BOARD OF REGISTRATION.

The New Hampshire Board of Registration in Dentistry will hold its next examination of applicants for registration in Manchester, N. H., June 11-13, 1907.

A. J. SAWYER, D. D. S., Sec'y.
Manchester, N. H

JAMESTOWN DENTAL CONVENTION.

It gives me pleasure to announce to you the full list of essayists for the Jamestown Dental Convention, which I will thank you to publish, with the subjects, as follows: Prof. W. D. Miller, of Berlin, Germany, subject, "Demonstrations of Preparation Relating to the Wasting (so-called erosion) of the teeth;" Dr. Chas. L. Alexander, Charlotte, N. C., subject, "Gold Inlays;" Dr. F. T. Van Woert, Brooklyn, N. Y., subject, "Is the Cemented Filling the Filling of the Future?" Dr. R. Ottolengui, New York City, N. Y., subject, "The Angle Method in Orthodontia".

I will thank you to add the following names to the list of vice-presidents: Dr. George E. Mitchell, Haverhill, Mass.; Dr. F. A. Shotwell, Rogersville, Tenn.; Dr. D. J. McMillen, Dr. George S. Vann, Gadsden, Ala.; Dr. Chas. S Butler, Buffalo, N. Y.; Dr. A S Melendy, Knoxville, Tenn.; Dr. W. D. Miller, Berlin, Germany; Dr. Chas. L. Alexander, Charlotte, N. C.; Dr. F. T. Van Woert, Brooklyn, N. Y.

Yours very truly,

H. WOOD CAMPBELL, Sec'y.
Organization Committee.

HEADQUARTERS NATIONAL DENTAL ASSOCIATION.

The Plaza hotel has been secured as headquarters for the coming National Dental Association convention, which meets in Minneapolis, July 30-Aug. 2, and is situated one-half block from where the clinics will be held. Rates, $2 per day and upward. European plan. Rates at other hotels are as follows:

The West hotel, $1 per day and upward. European plan.
The Nicollet hotel, $1 per day and upward. European plan.
The Majestic hotel, $1 per day and upward. European plan.

NATIONAL DENTAL ASSOCIATION, SECTION I.

The following papers have been secured for Sec. 1 of the National Dental Association for the Minneapolis meeting, beginning July 30:

1. "The Over-Arch Bar in Bridgework"..........Dr. L. C. Bryan
Bazel, Switzerland.
2. "Some Practical Experiences Theoretically Expressed"..
..................................Dr. Emory A. Bryant
Washington, D. C.
3. "Treatment of Mal-occlusion of Deciduous Teeth".....
............................Dr. Guilhermena P. Mendel
Minneapolis, Minn.
4. "Evolution" ....Dr. Chas. L. Hungerford
Kansas City, Mo.
5. "The effect of Excess of Mercury Upon Shrinkage, Expansion, Edge-Strength, Flow, Change in Composition and Stability of the Dental Amalgam Alloys."..........
....................................Dr. Marcus L. Ward
Detroit, Mich.
6. "Porcelain" ....Dr. C. M. Work
Ottumwa, Iowa
7. "Physical Condition of or Pertaining to the Human Teeth" ....Dr. F. G. Corey
..................................Council Groves, Kans.
8. "Method of Replacing Broken Facings on Crowns and Bridges" ....Dr. J. V. Conzett
Dubuque, Iowa

There may be a few additions to the list, as all the returns are not yet in.

D. O. M. LECRON, Chairman, Sec. 1, N. D. A.
E. P. DAMERON, Sec'y, Sec. 1, N. D. A.

THE DENTAL ALUMNI SOCIETY, UNIVERSITY OF PENNSYLVANIA.

The twenty-seventh annual meeting of the Dental Alumni Society of the University of Pennsylvania will be held in Philadelphia June 15, 17 and 18, 1907.

This will be an extremely interesting meeting, the number of clinics and social features being unusually large.

THE PROGRAM.

Saturday, June 15.

3:00 p. m. Aquatic sports in the gymnasium pool. Races, water polo and fancy swimming.
4:00 p. m. 'Varsity Baseball Team vs. Graduates, Franklin Field. Admission free.
6:00 p. m. Alumni supper. Weightman Hall Gymnasium.
7:45 p. m. Annual business meeting, General Alumni Society, Weightman Hall.
8:00 p. m. Reception to wives of alumni, Houston Hall and adjoining campus.
8:30 p. m. Reunion of classes in the Dormitory Triangle and lighting of the bonfire. Special quarters for alumni of the Dental Department.

Monday, June 17.

10:00 a. m. Clinics and demonstrations, Dental Hall, both morning and afternoon.
7:00 p. m. The Twenty-seventh Anniversary Banquet, Dental Alumni Society, The Bartram.

Tuesday, June 18.

10:00 a. m. Annual business meeting, Dental Hall.
2:00 p.m. University grounds and buildings open for inspection

There will be special rates on all railroads. For further information, address

VICTOR COCHRAN, Sec'y.,
1628 N. 17th St. Philadelphia, Pa.

AFTERMATH

Robberies.—Dr. Grant, $130; Smith & Barnes, $200, and Dr. Davis, $50; all of Palestine, Texas.

Loss by Fire—Two thousand, five hundred dollars to G. H. Heyman, a dentist of Chattanooga, Tenn., May 6; $800 insurance.

Deaths.—Dr. Wm. B. Hendel, of Muskegon, Mich., May 6, aged 60 years. Dr. J. W. L. Rabe, of California, Pa., May 8, aged 72 years.

Stingy.—She: Your father must be awful mean; him a shoemaker, and you wearin' them shoes! He: Say, your father's a dentist, yet your baby ain't got no teeth.

Loss by Fire.—Fire in the offices of Dr. Lewis, of Portland, Ore., damaged implements and furniture to the amount of about $500. Luverne, Alabama, was visited by another fire April 25. Among those who lost were Lightfoot and Stephens, dentists.

Meets Death Under Street Car.—Dr. Roy L. Pruitt, a dentist of Jersey City, N. J., formerly of Aurora, Ill., and Chicago, met death April 29, by being struck by a street car.

Detroit (Mich.) Dental Society elected the following officers: President, Dr. F. W. McDonald; vice-president, Dr. G. F. Burke; secretary, Dr. D. M. Graham; treasurer, Dr. J. M. Thompson.

Cincinnati Girl Wins First Prize.—The faculty prize of a gold medal for the best general examinations in the senior class, Ohio College Dental Surgery, was awarded to Miss Clara E. Stock, of Cincinnati, O.

Columbus (Ohio) Dental Society Officers.—New officers were elected for the ensuing year as follows: Dr. L. P. Bethel, president; H. V. Cottrell, vice-president; R. R. Smith, secretary; W. B. Kaiger, treasurer.

Presented with a Loving Cup.—Dr. M. C. Marshall, dean of the

St. Louis Dental College, was presented with a loving cup by members of the Alumni Association, at the annual banquet of the association, May 8.

Marriages.—Dr. Edwin Hulley, of Marion, Ind., and Miss Margaret Anderson, of Logansport, Ind., were married in the latter place April 27. Dr. Wm. A. Hayes and Miss Helen Snow, both of High Point, N. C., were married April 25.

Dentist Killed While Hunting.—Dr. E. L. Moore, a dentist of Pinckney, Mich., was accidentally killed at his hunting lodge, April 12. A loaded shotgun fell on the floor and blew the side of his head off. Moore was formerly from Bay City.

Southwestern Michigan Dental Association elected officers as follows: Prsident, Dr. O. E. Lamphear, of Paw Paw; vice-president, Dr. James B. Doyle, of Grand Rapids; secretary-treasurer, Dr. C. W. Johnson, of Lawton. Jackson was selected as the place for the next meeting.

Dr. Eggleston Insane.—Dr. J. Enslow Eggleston, a prominent dentist of Denver., Col., who was brought to the United States penitentiary last summer, to serve a sentence of ten years for counterfeiting, has been taken to the government asylum for insane at Washington by United States marshal.

Dentist Is Drowned.—Dr. R. W. Smith, aged 38, a dentist of Rio Vista, Cal., was drowned May 1. He was aboard the launch Princess, owned by Sauritzen Bros., which shot up the sloping bank of Sherman island at Hutchinson's Landing. In the excitement he jumped overboard, evidently intending to swim ashore.

Oregon State Dental Association.—Officers elected were: President, Dr. A. L. Beatie, of Oregon City; vice-president, Dr. W. R. Allen, of Independence; secretary-treasurer, Dr. M. C. Holbrook, Portland; members of executive committee, Dr. M. C. Harris, Eugene; Dr. W. C. Shearer, Portland, and Dr. J. M. Yates, Portland.

Asks $10,000 Damages.—Miss Edith Kelley, a student at Drury college, has brought suit against Dr. I. Weiner, a dentist of Springfield, Mo., for $10,000 damages. She alleges that Dr. Weiner induced her to take gas while having a tooth extracted, and claims the aeriform fluid administered to deaden the pain has impaired her health.

Kent County (Mich.) Dental Society elected the following officers: President, Dr. J. B. Chappell; secretary, Dr. W. W. Gibson; treasurer, Dr. I. D. Carpenter The dentists discussed the McKay bill, now before the legislature, regulating the practice of dentistry and quite unanimously indorsed it. Eighteen members attended the meeting.

Dentist Is Fined for Illegal Practice.—A. H. Azbill, formerly of Dayton, O., was arrested and fined in Hamilton, O., April 25, for practicing dentistry without a license. A young lady claimed that he had injured her teeth, and an investigation showed that he was unlicensed. He was arraigned before Mayor Thomas and fined $50 and costs.

N. Y. State Dental Society elected the following officers: President, Dr. W. S. Rose, Schenectady; vice-president, Dr. Louis Meisburger, Buffalo; secretary, Dr. Ellison Hillyer, Brooklyn; treasurer, Dr. M. D. Jewell, Richfield Springs; correspondent, Dr. S. L. Goldsmith, New York. Dr. T. W. Brophy, of Chicago, and Dr. Wm. Jarvie, of Brooklyn, were presented fellowship medals.

Deaths.—Dr. Joseph T. Harper, of Ingram, Pa., May 6, of paralysis, aged 77 years. Dr. John C. Teats, of Sterling, Ill., March 29, of heart failure. Dr. Wm. C. Gigalski, of Buffalo, N. Y., April 11. Dr. W. A. Stevens, of Chicago, Ill., April 15. Dr. A. B. E. Austin, of Galion, O., April 20. Dr. W. J. Laurence, of Chicago, Ill., April 9, aged 84 years. Dr. G. R. Leonard, of Mandau, N. D.

Dies from Abscessed Tooth.—Joseph Knockel, of Mosalem, Ia., is dead as the result of an abscessed tooth, and the suffering caused the victim was intense. The doctors pronounce the case a most peculiar one, and were unable to do anything to help the patient. The deceased's face and neck were swollen in an abnormal manner, the eye and one side having been so affected that they were more than twice their natural size.

Extraction Extraordinary.—Perhaps the greatest dental operation on record was performed upon an elephant in the City of Mexico. The aching tooth was 12 inches long and four inches in diameter at the root. After Mr. Elephant had been securely fastened with chains his mouth was pried open and a quantity of cocaine applied to deaden the pain. When this was done, a hole was bored through the tooth and an iron bar inserted. Then a rope was twisted around the bar and four horses attached.

Georgia State Dental Society.—The following officers were elected: President, T. C. Gibson, Forsyth; first vice-president, C. P. Davis, Americus; second vice-president, W. C. Miller, Augusta; corresponding secretary, D. H. McNaile, Athens; recording secretary, Delos Hill, Atlanta; treasurer, H. R. Jewett, Atlanta; executive committee, Joseph Broughton, Atlanta; E. A. Tigner, Milledgeville: R. Holmes Mason, Macon, and W. E. Bugg, Athens.

Iowa State Dental Association elected C. E. Woodbury of Council Bluffs, president, T. E. Cook, of Burlington, secretary, and G. W. Slingluff, of Burlington, treasurer. Des Moines was selected as the next meeting place. At the meeting of the Iowa State Dental

Society a plan was considered to divide the state into fifteen districts, with a dental society for each district, no dentist to be a member of the state society unless he is a member of the district society.

Ordered False Teeth by Mail.—A Philadelphia dentist, not long ago, received an extraordinary order from a man in Altoona desirous of providing himself with a set of teeth to replace those lost by reason of a kick from a mule. "My mouth," wrote the Altoona man to the dentist, "is three and a quarter inches across, five-eighths inches through the jaw. It is shaped like a horseshoe, toe forward. If you want any more particulars, I'll have to come to Philadelphia."

Dentists Formulate New Bill.—Declaring that they will not be taxed like dogs, Detroit (Mich.) dentists have formulated a bill that lacks the clause of the McKay bill providing for an annual license fee of $1. In place of this the new measure requires every dentist in Michigan to register with the county clerk, the fee to be 50 cents, and every one must be a graduate of a certified college. The compromise bill, after some opposition, was ratified by the members of the state board.

Unlucky 13.—Dr. J. A. Turner, a dentist just arrested at Fort Smith, Ark., has found 13 to be an unlucky number. He has married that number of women within a year, deserting 12 of them, finding his victims in Michigan, Virginia, New York, Ohio, Tennessee, Indiana, Kentucky, Missouri, and Illinois. He answered requests for husbands and after finding the value of the property the women owned, married them and lived with them only long enough to get their money.

Connecticut State Dental Association.—The officers chosen were: President, Dr. F. Hindsley, Bridgeport; vice-president, Dr. W. O. Beecher, Waterbury; secretary, Dr. E. S. Rosenbluth, Bridgeport; treasurer, Dr. F. W. Brown, New Haven; asistant secretary, Dr. A. E. Carey, Hartford; librarian, Dr. R. H. Keeler, New London; editor, Dr. A. H. Spicer, Westerly, R. I.; executive committee, Dr. F. G. Murles, Jr., Windsor Locks; Dr. F. J. Irbe, Waterbury, and Dr. W. V. Lyon, Bridgeport.

Thieves Set Fire to Dental Office After Robbing It.—It becomes more and more apparent that the fire in the Neve Block, Bessemer, Ala., May 5, was of incendiary origin, after robbery of the dental offices. Men who carefully looked over the office and the place where the fire originated are firmly of the opinion that after the gold in the office had been stolen, the party deliberately set fire to the room and left. Every dentist's office in Bessemer but two has been robbed of gold in the past few months.

Death of W. N. Tuller.—Dr. William Newton Tuller, son of Dr. R. B. Tuller, Chicago, died at Carlsbad, N. M., May 1st, from typhoid fever, contracted as he was recovering from an operation for appendicitis. He went west a year ago on account of ill health. He was born and educated in Chicago, and was a graduate of Chicago College of Dental Surgery, in which institution his father has been a member of the faculty for ten years. We extend our heartfelt sympathy to Brother Tuller and family in their affliction.

Memorial to Famous Dentist.—A memorial to Dr. Horace Henry Hayden, one of the founders and the first president of the Baltimore College of Dental Surgery, is to be erected at Hartford about the middle of next month. The memorial will be of colonial red brick, with stone base, four and one-half feet square at the base and three and one-half feet square at the top, and eleven feet high. Dr. Hayden was also founder and president of the American Society of Dental Surgeons, and the first dental society in the world.

No Damages for Loss of Jaw-Bone.—By a decision of the supreme court, Tuesday, Charles E. McKeag, of Cincinnati, gets nothing for the loss of a jaw-bone, due as he claimed in his petition, to the use of filthy dentists' tools upon his teeth. He claimed that in drawing a tooth, the dentist used forceps that had not been sterilized, and that his gums were infected by decayed matter from other teeth. As the result, blood-poisoning resulted and necrosis of the jaw-bone, which required a part of the jaw-bone to be removed. McKeag sued for $5,000 damages and got a verdict for $3,500 in the general term of the superior court, but at special term it was set aside. McKeag came on up from that decision and now loses.

Obituary.—Died at Logansport, Ind., April 18, 1907, from blood-poisoning, Dr. Daniel L. Overholser, in the seventy-second year of his age. Dr. Overholser located in Logansport in 1869, in the practice of dentistry, and remained in practice until about seven years before his death. He was a very skillful dentist. He was a member of the State Dental Association, and had held many prominent offices in the association. He was popular with all who knew him, and his colleagues respected him, not only for his many manly qualities, but for his professional skill and attainments. He was a true friend, and a Christian gentleman. He is survived by his wife, and two children, one of whom is Dr. Wiley Overholser, of Winamac.

Alzen, a New Metal.—A new metal is attracting considerable attention in Germany, and gives promise of becoming of no little importance to many branches of industry. It has received the name "alzen," the name being a compound of the first letters of aluminum and zinc, of which it is composed. In alzen there are two parts of aluminum and one part of zinc. It is claimed for the new metal that it equals cast iron in strength, but that it is much more elastic, and that it has a great superiority over iron in that it does not rust easily, and takes a very high polish. Owing to its texture, the new metal is said to be capable of filling out the most delicate lines and figures of forms in casting, which because of its strength and elasticity, will not be easily mutilated.

Sues Dentist for $15,000.—Miss Flora A. Prout has sued the G. Gordon Martin company of Chicago for $15,000 damages. The plaintiff declares that, on May 26, 1905, she visited the company's parlors and had a certain process explained to her. She declares that it was represented to her that, by a secret process, her teeth could be made to appear natural, and so much so that even an expert dentist would have difficulty in detecting the imitation teeth. Many of her teeth, which were in good condition, she declares, were sawed, filed and loosened to make way for the placing of the secret-process teeth. She declares that since having had her teeth repaired by the secret process she has been compelled to pay $500 to another dentist to repair her teeth in a correct manner.—Chicago Daily.

Paid $10,000 Dental Bill.—It cost the ameer of Afghanistan the fabulous sum of $10,000 to have ten teeth filled by a young American dentist. Dr. Mark L. Smith, formerly a resident of Mount Carmel, Ill., but now living in Calcutta, is the man who did the work, and he is now, to all intents and purposes, the official dentist for the royal potentate. The dental work consisted of four gold and six amalgam fillings, for which Dr. Smith was paid $6,000. The additional $4,000 was expended by the ameer in conveying the dentist from Calcutta to Kabul, the capital, his entertainment while in Kabul and the return to Calcutta. This made it cost the ameer $1,000 for each tooth that was filled. The ameer was so much pleased with his American dentist that he declares he will summon him to Kabul again when he has any more teeth that need to be filled.

Southern California Dental Association.—Eighty per cent. of the ethical practitioners of southern California are members of the association, a larger per cent., they claim, than anywhere else in the world. Officers elected for next year are: J. F. Cooke, of Los Angeles, president; Leland D. Jones, San Diego, first vice-president; W. L. Warnekross, Santa Barbara, second vice-president; Charles M. Benbrook, Los Angeles, secretary; Kate D. Buck, editor. The business of the association will hereafter be conducted by an executive council of nine members, three being elected each year. Their action can be rescinded on two-thirds vote of the association. The members of the council are: L. E. Ford, E. G. Howard and E. L. Townsend, elected for three years; W. H. Spinks, J. D. Moody and George A. White, two years; D. Cave, J. Walter Gray and Garret Newkirk, one year.

Dentists Contribute to Y. M. C. A.—Des Moines (Iowa) dentists are taking an active interest in the Young Men's Christian Association and have pledged themselves to contribute $1,000 to the fund that is being raised for that institution.

Recent Patents of Interest to Dentists.—

848001—Head-rest for barber and other chairs, Eugene Berninghaus, Cincinnati, O.

848403—Dental obtunder, Perry R. Skinner, Amsterdam, N. Y.

848406—Toothpick machine, Willis W. Tainter and G. P. Stanley, Dixfield, Mo.

848334—Combination dental plugger, Percy E. Williams, Savannah, Ga.

849208—Dental handpiece, Lyter H. Crawford, New York, N.Y.

849209—Combination mouth-mirror and lamp, Lyter H. Crawford, New York, N. Y.

849335—Electric dental furnace, Lewis Markwitz, San Francisco, Cal.

848693—Toothpick holder, Charles H. Sharp, Lockport, N. Y.

848863—Reinforce and backing for artificial teeth, Isidore Stern, New York, N. Y.

849297—Dental swaging device, George J. Weber, Liberty Center, O.

849595—Head-rest for barbers' chairs, Benjamin F. Buchanan, Camden, N. J.

849702—Guard and moistener for dental tools, Charles A. Sevier, Jackson, Tenn.

850661—Dental engine, Jesse A. Lewis, Elgin, Nebr.

Copies of the above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

REGULAR CONTRIBUTIONS

THE COMING REFORMATION IN THE PRACTICE OF DENTISTRY.

By W. P. McElroy, M. D., D. D. S., Butler, Pennsylvania.

I take pleasure in submitting for your consideration a paper entitled "The Coming Reformation in the Practice of Dentistry," a subject relative to our work, and about which the writer for a number of years has been more or less deeply concerned; and if my hearers will have the kindness to pardon personal mention, it seems I cannot better give you the keynote or a more fitting prelude to the trend of thought to be pursued than by relating to you an incident of my college career, which in itself signifies nothing of more importance than as before stated: Prof. C. N. Peirce, dean of the Pennsylvania Dental College, during one of his lectures on operative dentistry, remarked, "that occasionally a father or mother of the better and more intelligent part of the Philadelphia dentists' clientage, would call at the office with a son or daughter, and say, "Doctor, I am going to place this boy or girl's teeth in your care and keeping, and I desire you to see that no cavities make their appearance." To emphasize this fact he stated further, "that a prominent lady of the city, about six months previous had brought to him her son, a lad of about 11 years, and made the above request; that he had carefully cleansed the teeth, had given the boy tooth-powder and brush, with instructions how to use them, and to return in three months. Before the expiration of this time, the mother returned with her son, and called attention to a new cavity she had discovered, taking the good old doctor to task, saying he had not given the teeth proper attention and care, or this would never have happened." As a student on the benches, I must confess I was rather startled and worried at this new phase of developments in the minds of the laiety, and the new responsibilities which seemed to be attaching themselves to the profession, to which I was soon to become a candidate for admittance. Like thousands of others, I had conceived the idea that the dentist was to wait, at all times, till caries made its appearance, and then resort to the usual mechanical interference to arrest and hold such diseased conditions in abeyance. To me then the demand to prevent and oppose the outbreak of caries was not only unreasonable, but impractical, and since then, in scanning dental literature, I have been somewhat on the alert for matter written upon this subject, and feel safe in making the assertion that not one-half of one per cent. of the matter read, touched upon, or in any way alluded to the prevention of disease proper of the dermal appendages. Suffice it to say, that the day has come when dentistry is considered, by intelligent, thoughtful people, as a branch of medical science, and the dentist a specialist at least, upon the dental organs. The march of general and special medicine in more recent years has been preventive. Much energy and skill have been expended in this direction. Septic conditions, once so prevalent with the surgeon, are now the exception, as was strikingly exemplified in the wounded of the late Japanese army. Medical men are, and have been, able to cope with and stamp out epidemics of infectious diseases, by modern scientific methods of prevention, nowhere more beautifully demonstrated than in our own late scourge of typhoid fever at Butler, Pa., the spread of which would have been appalling had the medical men and those in authority been insensible to every aspect of the case save to dope each individual as he became prostrated. Even the scientific fruit-grower does not wait until the product of his trees and vines are injured by the insect, but he anticipates and sprays in advance, to prohibit the destructive forces of the enemy. Similar cases might be enumerated at length, where means and measures are adopted scientifically, with the same defensive purposes in view. But what has the dental profession done in the past, either directly or indirectly, to prevent the outbreak of disease in the dental organs? With but few exceptions, such attempts have been limited, feeble, and inadequate.

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*Read before the Odontological Society of Western Pennsylvania, March, 1907.

No organized effort. Up to within a few months ago, the whole mass of the profession seems to have been lost, deaf, dumb and blind to all except the mechanical phase of the subject. Into this feature of the work they have entered with a spirit and zeal full of frenzy. Nevertheless, much credit must be given to those who are able to produce beautiful and apparently perfect artificial substitutes, in lieu of the missing portions of teeth that have perished by disease. We are often amazed, and marvel at the perfection of the product of some of the most skillful ones, yet nothing artificial ever came up to nature in its fullness. It surpasses anything ever contrived by the ingenuity of man. Perhaps some of the would-be "wonder-workers," in attempting to swallow this last statement, will experience some difficulty, not that they would disparage or willfully cast reflections upon the work of the Creator, but when it comes to their inimitable cobbling, and patchwork upon the teeth, they seem to wonder how the Almighty ever happened to overlook the process of their cunning and ingenuity when he created man. Ever since the beginning a truth has been staring the dental profession in the face, almost as true as twice two are four, namely: that the self-cleansing surfaces of the teeth are practically immune from decay. Now, if this be true, does it not seem reasonable, rational, and plausible, that the approximal and other surfaces would be just as immune if kept in like condition? Accumulations in inaccessible places above the teeth are allowed to remain undisturbed from week to week, from month to month, and from year to year. You know the rest; and is it any wonder that the molecular decalcification and decomposition of these organs take place when constantly receiving baptisms and renewed baptisms of oral acidity, the generally accepted cause of caries and erosions? The anatomy, the physiology, the pathology, the etiology, and the chemistry, relative to these organs are clearly understood, together with the impalpable forces, that are commonly present within their environment, and what we most need now is a new therapeutics, along the line of oral hygiene and prophylaxis, maintaining so far as possible oral alkalinity and a thoroughly aseptic condition of the mouth. We need some of the master minds to leap into the arena, to be followed by other strong men of the profession, to lead and demonstrate what can be done in the direction indicated. The whole history of our profession teems with examples to show what wonders may be accomplished by resolute perseverance and intelligent, patient toil. Thinkers and doers now and then arise, like stars above the horizon. Williams rose and thought, and his researches gave us the true cause of dental decay. Black labored zealously and thought, and he gave the profession modern cavity preparation. Jenkins investigated and thought, and we now have the porcelain inlay. Angle observed and thought, and to him, more than to any one else, is due the classification of malocclusion so familiar and helpful to orthodontists. The truth that these great minds have wrought out, and the blessings that accrue, will be handed down to the dental profession and to humanity for countless ages to come. What a host of witnesses have since appeared to testify to all they wrote and taught, eager to partake of "the crumbs that fall from their table," and so we must have thinkers and doers, if dentistry is destined to have a "new birth," and a new epoch added to its history. Already the subject has been taken up by such men as Dr. Edmond Rosenthal, of Brussels, Belgium, who says: "All medical and social science tend to develop the means to prevent disease in all its forms. Hygiene is the law to which the civilized world will more and more willingly submit. Its domain is vast, and only partially explored and understood. Beautiful operations are a credit to those capable, but timely care and advice would not have necessitated their existence." He says further: "By popularizing the hygienic and prophylactic conditions of the oral cavity, greater beneficial results would follow for the community than by repairing avoidable damage." C. M. Wright, professor of physiology and pathology in the Ohio Dental College, says: "We have been so busy with actual disease, or disease which is apparent, that we have not given adequate attention to the potential cause of disease. This must engage our attention for the future. The coming dentist must operate upon sound teeth, and prevent the outbreak of diseases lying dormant." He says, also, "When preventive medicine succeeds in reducing the percentage of death from typhoid, small-pox, diphtheria and tuberculosis, much can be accomplished by resorting to preventive measures in dentistry." Dr. D. D. Smith says: "By fortnightly or monthly polishing of every surface of the teeth, from 75 to 90 per cent. of the dental caries can positively be prevented." The doctor does not classify the exceptions, but they will certainly be found among those of some peculiar idiosyncrasy or discrasia, and those suffering from long exhausting, debilitating diseases, such as Bright's disease, diabetes, tuberculosis and fevers, where the vital forces are depleted and the oral secretions morbidly perverted in consequence. Other exceptions will be found among the poor who have neither the time, the means, the inclination nor the intelligence to properly care for the teeth. In fact, there is a woeful lack of intelligence among all classes concerning the possibilities of modern dentistry, as compared with general medicine and surgery. Why this is, we are unable to answer, unless, possibly, as a rule, dentists are too reticent. Every dentist owes it to his subject who is suffering from caries or any other condition that may be traced to ignorance primarily, to make clear the cause which led to it, that in the future he may guard against a repetition of the trouble. This is a duty incumbent upon the profession at every favorable opportunity, if the people be enlightened on what they should know to the best interests of their teeth and comfort. To ignorance may be traced most of the evils and suffering of the world, and the dental profession is responsible for that portion of it found in its field of labor, and when, collectively, they develop, by reason and research, into the light of truth, and adjust the surroundings of the teeth harmoniously to nature's laws within them, under these conditions caries and the diseases incident to it, will cease to be. This is the new birth, the new epoch dentistry is destined to have. This is the highest type, the loftiest ideal of dentistry of which we can conceive, and the greatest gift the dental profession can hand down to civilization: and furthermore, it is no more wonderful, absurd or visionary, than the successful prevention of other diseased conditions that have directed the attention and fixed the scientific gaze of some of the ablest and most exalted minds of the medical fraternity. Any radical departure from time-honored customs and usages is often regarded with suspicion, and at times bitterly antagonized by those deeply concerned. These might be classified as pessimists, doubters, criticizers. the prophets of failure, victims of the fantasies of fear, credulous only of the losses of human exertion. Thanks for the optimists. They do not believe that an occasional failure constitutes a whole life-time of disaster. Ever hopeful, they are of those who conceive and create. The quartet of scientific dentists previously referred to in this paper were optimists, and had they been pessimists, no beam of light from them would ever have crossed our darkened pathway. And so, we may rest assured, the optimists will lead the "Coming Reformation in the Practice of Dentistry." They will mold, and give impulse and direction to the tremendous energy that is to prevent in a large degree, tooth dissolution, and incidentally the intense suffering, the dental post-mortems, the embalming and mummifying processes, the golden caskets, the wholesale extirpations, the empty oral tenements, refilled by porcelain grave stones to the prematurely departed. These conditions typify and symbolize the distress of generations that are gone, and they stand as a mournful prophecy to those that are to come. What grievous sorrow, distress and pain it has cost man to learn, that to violate a law of his own being is to bring upon himself sorrowful consequences. In the light of reason and the present status of our profession, a profession desirous of adding to its honor and efficiency before the world, do we not individually have some cherished convictions that these and other oral conditions so prevalent do not serve the ideal healthful interests and highest happiness of civilized man, but that, whatever has been, whatever is, "the best is yet to come."

METHOD OF RETAINING TEETH AFTER REGULATING.*

By W. S. Locke, D. D. S., Cincinnati, Ohio.

There have been numerous articles written upon the subject of regulating of teeth and the correction of deformities of the mouth, but very little, if anything, has been said upon the important subject of the retention after regulating, or what points must necessarily be observed that the teeth may stand in the desired positions without retention by mechanical appliances.

The art of regulating teeth is nothing as compared with the art of retaining teeth. By mechanical appliances and a few brains it is possible to correct almost any of the deformities of the mouth, but without mechanical appliances, how are you going to make them stay there? No doubt those of you who have done any amount of regulating know how difficult it is to arrange the teeth in a manner and with such an occlusion that they will remain where you put them after the retaining appliances have been removed. You are also familiar with the objections and dangers to these long-standing, mechanical retaining appliances. When worn for months, as is often necessary, we are likely to find decay underlying bands where cement has dissolved. The tooth-brush about such bands does not do its duty and when these retainers are removed you will find more or less spacing, to say nothing of the unsightly appearance. As these conditions have presented themselves time and again after teeth have been held in position for but a short while, it has become evident that such methods of retaining are very unreliable.

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*Read before the Ohio State Dental Society, December, 1906.

About five years ago the writer took up the study of this subject to learn, if possible, more about the physical and pathological changes that take place while moving teeth and the cause of their return after releasing them, with the view of overcoming it by some treatment or operation.

It is well known that when great enough pressure is placed upon a tooth, the tissue in front of it is broken down and carried away by cells known as osteoclasts, and rebuilt (in the space left by the tooth) by those known as osteoblasts. Upon careful examination the writer first found that before any resorption took place the tissue was greatly compressed; even the bony substance (process) showed a great amount of elasticity. For example, in the separating of teeth for filling, the rubber plug or gutta-percha being a light and limited pressure, though it may remain for several weeks, does not cause resorption. The septum of bone between the teeth only springs, and when the plug is removed, will push the tooth back to its original position. When greater pressure is placed upon this tissue than it can stand, then an inflammation is set up and resorption takes place nearest the tooth, while that tissue beyond is greatly compressed. If the pressure is released at any time, this compressed tissue recovers itself and pushes backwards or returns to its original position, less that amount destroyed by resorption. This shows one reason why teeth move back. Again, when a tooth is moved but a short distance, and not beyond the circumference of its socket, it is hard to retain because the sides of the socket or process, acting as a spring, forces it to the center of the socket, its former position. On the other side of the tooth another condition presents itself which you will readily see is a cause for this backward movement. The osteoblasts do not replace the tissue nearly so rapidly as it is carried away on the opposite side, so that, in the moving of a tooth, space is left behind it, with the exception of the soft tissues, which are dragged along, completely covering the cavity underneath. This condition is more marked when a tooth, or teeth, are moved outward. The same condition is presented when the teeth are partially drawn from their sockets, as in drawing a cuspid down into position. The plan I have adopted for overcoming these conditions is as follows:

After the tooth, or teeth, have been regulated, I adjust retaining appliance, then place the patient under an anesthetic, and with a lance open the tissues at least one-half of the distance the length of the tooth, on the lingual side, this opening to be the full width of the root. If the tooth has been moved outward you will find the lance will readily pass into the position formerly occupied by the tooth.

If the tooth is moved inward after going through the soft tissue, it will be necessary to use a bur. Care should be taken not to touch the peridental membrane or drill too deep. It is also well to cut through the tissue on the labial side, especially if the tooth is moved outward by cutting into the septum on both sides.

After the opening is properly made it is thoroughly packed with antiseptic gauze or cotton and repacked several times until the cavity is completely healed from the bottom. The retaining appliance is then removed and can be done with perfect safety, providing the force of mastication is in the proper direction, and not towards that position the teeth formerly occupied. In drawing a tooth from its socket, I drill into the process near the end of the tooth on both sides, care being taken not to go over the end, to avoid destroying the nerve, or up to the peridental membrane. By doing this, new and firmer granulations are formed, and the tooth will remain in the desired position without any retention.

In order to accomplish the above results, however, there are several important points that must be observed. The occlusion of the teeth must be so arranged that the direction of force will be towards the desired position and not against it. The eruption of the third molar, or wisdom tooth, should not be allowed to force the bite forward as it sometimes does, and destroy all that has been accomplished. And that brings to mind that the teeth cannot be placed in an overcrowded condition and be expected to remain there unless held through life by mechanical retaining appliances.

Speaking of this subject, a very prominent orthodontist once said to me: "It is not necessary to hold such teeth with retaining appliances forever, only until death, is sufficient." Except in cases where deformities are very great, our patients would rather we let their mouths alone than to harness them up with these unsightly appliances, to be worn indefinitely; consequently the success of the orthodontist depends upon his diagnosis and treatment, and if he be wedded to any one method or any one system, he is a failure.

This brings us again to the question of extraction and its bearing upon the retention following regulating.

It is claimed by the enthusiasts of the so-called New School of Orthodontia, that under no conditions whatever should teeth be extracted for regulating. How impractical and absurd such a theory is. It hardly seems possible to me that an orthodontist or any dentist, I will say, who is supposed to be a thorough mechanical as well as a scientific man who understands the natural forces as well as the mechanical forces, could entertain such a thought. Dr. Calvin S. Case, of Chicago, whom you all know to be one of the foremost orthodontists in the world, has attacked this foolish idea most severely and justly. He has shown without doubt, and beyond all argument, that certain deformities and irregularities must be corrected by extraction to get the best results.

There is no doubt but there have been entirely too many extractions for the regulating of teeth, and especially in the young subject, but in those cases where it is indicated, it should not be overlooked.

The great mistakes are the extractions in the mouths of children, and especially the extraction of the sixth-year molar, which always erupts in its normal position, and should be saved if possible, as well as all the other permanent teeth, in order that the jaws shall be fully and normally developed; but when cases are presented to us at the age of sixteen to twenty, as is often the case, the jaws are fully developed, or developed as fully as they will ever be; there is no movement of the teeth that will change or enlarge the jaw bone proper. Only the teeth and process can be moved, excepting, possibly, when great pressure is placed upon the chin, then resorption takes place at the point of contact only. When at this age a patient is found with a greatly protruding superior maxillary and a normal inferior maxillary, if regulated by the New School method without extracting, while the upper is being retruded, or rather the crowns tipped disto-lingually (as that is the real movement that takes place), the protruding movement of the lower teeth will be at least twice as great, and leaves the patient with a protrusion over the whole dento-facial area, and usually with a receding chin. By this method a deformity takes the place of an irregularity, presenting an unsightly appearance, and furthermore, the teeth will never remain as placed without permanent retention.

Our object in regulating should be to correct facial deformities and leave the patient with a good masticating occlusion, moving as few teeth as possible, that they may stand in the desired position within a reasonable time without mechanical retention. With such an object in view, would the above method be a correct one to pursue? I should think not.

I speak of the *method* because I have never heard of the New School applying any other than the intermaxillary force in these cases.

How much more sensible to remove the first or second bicuspids (as the case may indicate), and force the anterior teeth back, completely filling the space, then by the simple operation of cutting away the process on the lingual side, as I have described, the retaining appliances placed until the teeth have become firm, your final results will be, all of the teeth in their desired positions, with good facial harmony and no retaining appliances whatever. A case such as I have just described once presented itself to me for re-correction, the lady having been in the hands of an orthodontist who treated her without extraction in the above manner She informed me that the dentist was greatly pleased with the results, while she, her parents and friends, were very much disappointed, claiming the conditions much worse than before. I recognized a great protrusion of both maxillaries giving the appearance of something placed under the lips, completely obliterating the labia mental curve, giving a regular full-moon appearance. The young lady was slender and slight in stature, weighing only about 108 or 110 pounds, with a very narrow, piqued face. I called Dr. Frank Sage to view the conditions, and he described her beautifully in this manner: "A Grecian forehead, an Irish nose, and a German mouth." I removed the retaining appliances which I found in the mouth, allowing the teeth (with some help) to resume their former positions, extracted the superior first bicuspids, placing the front teeth where they belonged, and today the young lady's mouth is in perfect condition, without retaining appliances, and she is looked upon as being a very beautiful girl.

I will call attention to those cases of the open bite mal-occlusion, where we find only the molar teeth articulating. These conditions are often caused by the growth of adenoids, compelling the patient to sleep with the mouth open in order to breathe freely. The condyles of the mandible, resting as they do in the glenoid fossae, acting as fulcrum, with the masseter and internal pterygoid muscles drawing upwards from near the angle of the rami and the hyoid muscles attached beneath the point of the chin drawing downwards, prevents the undeveloped mandible in early life from assuming its normal position, which should be almost at a right angle. The molar teeth are erupted and occluded, holding the mouth open, with a protrusion of the lower jaw. No force or operation will change the position of such a jaw after the age of 15 or 16, and as only the teeth and process can be moved, extractions are necessary to bring about the best results that will remain permanently. I wish to call attention to one more form of irregularity where extractions are so often necessary, as this one feature of regulating figures so greatly in the permanent retention.

We often find the occlusion good and good facial harmony, with the superior cuspids alone erupted labially. The causes for such conditions are the premature loss of the deciduous teeth, allowing the permanent bicuspids and molars to drift forward, occupying the position of the cuspid or cuspids. If regulated without extraction it would be necessary to expand the arch and force the anterior teeth forward beyond their normal positions, making the full moon appearance that I have previously described, and at the same time place the teeth in a crowded condition where they will never remain without permanent retention. In such cases, where the bite and facial harmony are good, I should by all means let it alone and extract the first bicuspids, and by placing the cuspids into these spaces, the arch will be perfect and there will be no necessity for any retention whatever.

Now, I do not wish to lead you to believe that I am a great extractor for the regulating of teeth, for my endeavors are always to save all teeth possible; but I want to impress upon you the necessity of a careful diagnosis and a thorough study of facial harmony, that we may be able to recognize those cases where extraction is absolutely necessary, as well as where it is not, to obtain the best results and leave the teeth in such positions and in such conditions that they will need no permanent retention. In the young person extractions are seldom if ever indicated, but after sixteen or more years of age, when the jaws are fully developed, there are many such cases as I have described, where extractions must be made to obtain good permanent results.

It would not surprise me to find within a few years that the majority of orthodontists or enthusiasts that have advocated the retention of all of the teeth, no matter what the conditions, will take the opposite stand, for they are now overdoing a good thing.

When mechanical appliances are necessary, and they are necessary in almost every case for a short period of time to support the tooth or teeth firmly in position until the new tissues have formed about them, the writer advises only such appliances as are easily adjusted, changed or removed. Gold bands or any cemented appliance cannot fill these requirements, and are objectionable for reasons given in the forepart of this paper, namely, decay, spacing, etc.; consequently should not be used only when necessary. I have found the gold wire woven about the teeth fills the requirements in most every case. It needs no cementing, will cause no decay, no spacing, no irritation (if adjusted properly), can be tightened at any time while in the mouth, and holds the teeth firmly and closely together. If desired a gold wire about 20-gauge can be adjusted about the lingual side of each tooth, that portion passing between the teeth filed flat on the outer surface, leaving the rounded surface next to the tooth, these ends just passing the greatest diameter of the tooth. After all are adjusted, take impression, and after placing the wire bands into it, make model and solder the wires together on lingual side with only sufficient solder to catch them. Place the appliance in position in the mouth, and with long, thin beak pliers, catch the ends of the wires from the labial side, pressing them firmly to the tooth. If at any time it should become loosened, with the pliers tighten as above described.

Both of these methods were presented to our local society in Cincinnati some years ago by Dr. M. H. Fletcher, and we should all be greatly indebted to him for them, for when once used, and used properly, they will never be discarded. As the ideas were new to me at that time, they have been called, in my office, the Fletcher method of retention.

The method of retention by operation, which I have described, was not presented to me entirely through investigation, but partially through accident. I had been working upon the idea that the crowded tissues should be cut away, but I did not realize that the space left by the tooth would not be at least partially filled by new tissues within a very short time, but it is a fact that in many cases the entire socket of the tooth underlying the outer tissue remains for a long period of time apparently unrepaired, and I have found time and again the sockets (especially of the anterior teeth) void of any granular tissue whatever. The case to which I have just referred was that of a superior right cuspid found inside the arch and under the bite, with the other teeth in their proper positions, with plenty of room for this cuspid. The temporary lateral being in position, I extracted and found but very little root to it, although the patient was twenty-five years of age. I started to draw the cuspid into position, but there being such a dense body of process between the teeth, I decided to cut it out so that the tooth would come through quickly. I did so, and within a short time the tooth was in position. I allowed it to remain in that position for a few days, so that it would not be so sore when placing the retaining appliance. When the patient returned I noticed a little eruption on the lingual side, just under the outer tissue, and opened it, and to my astonishment I found a cavity large enough to pass a small lead pencil into, nearly half the length of the tooth, and entirely devoid of tissue. This cavity was perfectly healthy, not a pus sack, as you might think. I curetted it and packed with antiseptic gauze, and repacked until it was entirely healed. The patient has never worn a retaining appliance nor has the tooth ever moved.

I shall speak of another case where a cuspid erupted outside of the arch, the lateral underneath and inside the bite. Some years before, someone had extracted the first bicuspid, with the idea that they would straighten themselves, but instead the back teeth moved forward, partially filling the space. In regulating, it became necessary to crowd them into position, which made them more difficult to retain. After regulating, I put the patient to sleep and opened under the cuspid and lateral, also opened through the process on the labial side of both teeth, and treated as I have before described. The retaining appliance was removed in about one month, and notwithstanding the crowded condition of the arch, they have remained as I placed them. Both of the cases which I have just cited were operated upon in April, 1900. The following winter I read a paper upon the subject before the Odontological Society of Cincinnati, and while the subject was thoroughly discussed, I gathered from the remarks that, in the opinion of most of the discussers, the operation would be of value only in a small per cent. of cases. I was not discouraged, however, and since that time I have performed the operation upon most all types of irregularities, and many of them a great number of times, becoming more and more confident of success, and while all of the little details have not been worked out, I am satisfied this will be the future and most reliable method of retaining teeth after regulating.

DISCUSSION.

Dr. F. M. Casto, Cleveland, Ohio: When I consented to discuss Dr. Locke's paper I did so with the understanding that the subject matter of the paper would be retention of the teeth afer regulation. However, upon receipt of a copy of the paper, Saturday afternoon, I was disappointed to find that the Doctor had digressed considerable, and I am really sorry that I promised to discuss it. I am sorry for two reasons: first, I have not had sufficient time to thoroughly consider its contents, because of its late arrival, and, second, there is not very much of anything in the paper with which I can agree; and if there is anything on earth that displeases me it is to be disagreeable. With reference to the first two paragraphs in the paper, it would seem the Doctor has been devoting most of his time to the mechanical side of orthodontia and has lost sight of that all-important part—Diagnosis.

He says: "By mechanical appliances and a few brains, it is possible to correct almost any of the deformities of the mouth." You folks all realize that that is an absurd statement. Such statements belittle, to no small degree, our specialty. We can't conscientiously stand for such things being said of us. All my colleagues, here and elsewhere, I am sure, would take serious exceptions to such remarks. I think it takes lots of brains, and lots of hard work, too, to do successfully most any modern operation in dentistry.

The doctor, I think, should hold the orthodontic operations in higher esteem. We have long ago graduated from the thought that there is nothing to orthodontia but mechanical appliances. Indeed, there is so much more that the entire profession is astounded at its great volume. Continuing, the Doctor says: "But without mechanical appliances, how are you going to make them stay there?" That's a pretty difficult problem to solve; the nearest answer, however, would be the establishment of a normal occlusion of the teeth. The normal occlusion of the teeth is the undisputed natural and permanent retention. All the normal operative forces in and about the mouth are in perfect harmony with such a condition.

I confess there is some danger to the tooth structure where retaining bands are worn for a long period, but such danger is reduced to a minimum by the modern methods of constructing retaining appliances and by keeping them under close surveillance until removed.

The question of retention is a big proposition and is of necessity requiring a tremendous amount of study and thought by the men who are actively engaged in the practice of orthodontia.

Most authorities claim that when force is applied to a tooth to cause its movement, two principle changes take place in the alveolus, namely, a bending of the process and a resorption of the bone in front of the tooth and a deposition of bone behind it.

The changes varying according to the age, rapidity and direction of movement, the number of teeth concerned in the operation, and the condition of the peridental membrane, we have primarily concerned in tooth movement, the teeth, the process and the peridental membrane.

When pressure is first applied to a tooth the peridental membrane bebecomes compressed between the tooth and the bony wall of the alveolus. If this force is continued just sufficient to stimulate the cells contained within the membrane to activity, the bone is slowly resorbed away from the advancing side of the tooth; but if the force is sufficient to cause an inflammation in the membrane, as the essayist states it should be, there will be no resorption of bone; resorption is a physiological, and not a pathological process. However, if the inflammation continues a destruction of tissue will unquestionably follow.

The Doctor's example regarding the separation of teeth is rather misleading; I believe there will be a resorption of the bony septi if the separation is accomplished by light and limited pressure, and prolonged for several weeks, and, conversely, that there will be no resorption if the force applied is sufficient to cause an inflammatory condition. The essayist gives three reasons why teeth that have been moved return to their original positions, namely: "First, the compressed tissue recovering itself and pushing back; second, the springing of the bony sides of the socket; third, the cavity left between the tooth and process on the retreating side." The method he employs to overcome these causes and to dispense with the wearing of mechanical retaining appliances is, to put the patient under a general anæsthetic, and, with a lance, open into the cavity between the tooth and process on the retreating side of the tooth, cut the peridental fibres for at least one-half the length of the root and the full width of the same, then thoroughly pack the opening with antiseptic gauze or cotton, and repack several times until the cavity is completely healed from the bottom. It is my understanding that he advocates this procedure in any and all cases of corrected mal-occlusions. On account of the fact that some men may be led to believe that such a practice would be simple and effective, and on account of the possibilities of irreparable injury being inflicted upon the peridental membrane, I feel it my duty to condemn such a practice most strongly. It is not a practical thing to do, nor is it effective. The only thing that would be overcome by such an operation would be the severing of the peridental fibres that are on a tension. The compression of the tissues on the other side of the tooth and the springing of the bone would not be affected in the least. Therefore, these two causes why teeth return to their original positions would have to be overcome in some other way.

I am indeed sorry that the essayist has deemed it expedient to drag into this discussion at this time the question of the so-called New and Old Schools in orthodontia; personally, I think it an unwise thing to do. There has already been too much agitation on this question for the good of all concerned. Indeed, it is quite a disputed question as to whether there is or not a New and Old School, or whether we are not all working for the common good of orthodontia. The thought that we are, is certainly a more pleasant and satisfactory one.

I feel compelled to correct some of the statements the essayist has made regarding the so-called New School method. He says "that the members of the so-called New School claim that, under no conditions whatever should teeth be extracted for regulating." This statement is unwarrantable. We don't advocate extraction, but discourage its practice as much as possible, and we extract teeth only when it is found absolutely necessary, after a most careful, painstaking and thorough diagnosis, taking into consideration every known phase of the subject of Orthodontia. It has been proven beyond the question of a doubt by clinical facts that it is only necessary to extract teeth for the purpose of regulating in an exceedingly small per cent. of cases. No rule on earth is infallible when applied to a living thing. The essayist has fallen into the grievous error of citing a given case and then describing how it would be treated by the New School methods. No man has a right to presume how any case would be treated by any other person than himself. The conclusions as to how the case cited would be treated by the New School methods are as ridiculous as they are wrong.

In conclusion, I desire to quote a few words on retention from Dr. Angle: "After malposed teeth have been moved into the desired positions, it is of the greatest importance that they be mechanically supported until all tendency to return to their former positions has subsided; but it cannot be too strongly insisted upon that unless such occlusion has been established as will enable the inclined planes of the cusps to act in harmony for mutual support, and unless perfect harmony as to the sizes of the arches be gained, permanency of the teeth in their new positions after retaining devices have been removed cannot be hoped for. It should be borne in mind that all retaining devices are only temporary assistants to the permanent establishment of the normal functions of the occlusal planes of the teeth."

I use iridio-platinum almost entirely in constructing retaining appliances.

Dr. Burt Abell, Toledo, O: The subject of retention is indeed a mighty important one, and full of knotty problems. Orthodontists should hail with gladness any suggestions that have been proven trustworthy by experience.

After reading Dr. Locke's paper, in which he states that he began the investigation along this line about five years ago, I turned to Dr. Angle's work, "Mal-occlusion of the Teeth and Fractures of the Maxillæ," edition of 1900, and from page 177 I quote: "We believe that in suitable cases the duration and difficulty of the movement may be lessened fully one-half by the intelligent combination of methods—the surgical severing of fibres and the removal of bone, in combination with the use of the regulating appliances." On another page he suggests the use of those delicate instruments used in the operations for cataract of the eye for the severing of the peridental fibres. Now, as it is the elasticity of these same peridental fibres that bring the tooth back to its former position, if not held by an appliance till there is absorption and a new bone formed, would it not be a step in advance of Dr. Locke's suggestion, facilitating not only the retention, but the movement as well, if this operation were to be done at the beginning of the movement instead of after it was accomplished. This would also hold true if there were to be so great a movement required that bone should be burred out. However, Dr. Angle, as does Dr. Locke, I infer, would recommend surgical aid only in mature cases, where absorption is slow and repair even more tardy.

It is hardly fair for me to attempt to speak of Dr. Locke's method without having seen some of the results. I would infer, though, that one would have to exercise extreme care in the operation, or those fibres of the peridental membrane that support the stiff upright gingivæ would be injured and a recession of the gums result.

The matter of whether or not to extract has been, and is, a bitterly debated one between the two so-called Schools of Orthodontia. I would prefer not to discuss it further than to say that in the cases cited in the paper of the prominent cuspids, I would venture to assert that in at least 80 per cent. of such cases the incisors of both maxillæ and mandible are more or less lingual to a normal position. Instead of making room for the incoming cuspid by extracting the first bicuspids, and thus mutilating the case, we of the Angle School believe that it is far better to expand the bicuspid region linguo-buccally and bring the incisors labially to a normal position, and so make room. The great temptation is to get all the room by protruding the incisors, and of course there is the "German mouth," of which Brother Locke has spoken. Farther, also, I want to say that I do not believe that Dr. Locke or any other man ever saw a protruding upper and a normally-positioned lower unless there were spaces between the upper teeth, in which case there should be no difficulty in diagnosis or treatment. Otherwise the distal lower jaw or mandible is always the accompaniment of a prortruding upper set of teeth, with the weak or receding chin. Of course, then there should be (to quote) "twice as great a movement of the lower as of the upper teeth" to bring the receded lower out to its normal position. This is one of the disputed points. We of the so-called New School contend that there is not sufficient recognition of distal occlusion on the part of dentists and some orthodontists, and this condition is not remedied by the "odontocide" method, but that a symptom, instead of the cause, is treated. I have in my collection some slides that will beautifully show this. I consider it unfair to state that such cases cannot be retained without permanent retainers, for clinical experience has shown that they can be. Else we who seek to save such teeth and use this so-called "method" would be criminally blind to failure presenting itself and a persistence in treatment in face of it. We claim a reasonable amount of grey matter, and like others are shaping our course from success or failure in practice. That Dr. Locke has seen a case or two mistreated, does not argue that the "method" is at fault.

I should be very glad to see a case retained with the woven wires, for it appears to me that all an appliance of this kind would do would be to hold the teeth in alignment and could not possibly hold bicuspids and molars out to position if the arch were at all expanded. Neither can I see how either method of wire retention can possibly keep a rotated tooth from returning, unless a band be cemented to the rotated tooth, on which is a lug to engage the end of one of the wires. Then, perhaps, the last-mentioned plan would be effective.

Dr. A. O. Ross, Columbus: I believe in extracting in particular cases, where regulating is undertaken. The methods suggested whereby extraction may be avoided seem to me often too formidable for use in actual, everyday practice. I question whether we are not committing a sin in harnessing up the mouths of small children, as we too often do, without sufficient regard for the strain we are putting on their nervous systems. At all events, it is well worth while, in every case presenting, where we are called on to do something, carefully to consider what we are about to inflict on the patient, as a most important factor in determining how we may venture to proceed. Many things look well on paper and in the textbooks which are practically not to be thought of when it comes to cases presenting in our offices.

Dr. V. E. Barnes, Cleveland,: Dr. Ross has said that the correction of irregularities by non-extraction methods necessarily undermines the little patients' health, and particularly the nervous system, on account of the long and severe treatment. I deny, most emphatically, that assertion. There should be no breaking down. If properly treated, the patient need show but slight evidence of the pressure applied, and that only for a short time after the visit to the office. Nervous strain means abuse of modern facilities, and is not an inevitable result.

The criticism that Dr. Locke makes of some of the results of the so-called "new school" is a valid one. I have noticed the half-moon effect in the lips and would say that this is the effect of incorrect treatment, in that the teeth—the upper teeth—have been retruded, and the lower protruded or inclined forward, in an attempt to force a normal occlusion. This, in a class of cases where the lower jaw was receding, and *where regulation of the teeth alone was not sufficient.* The results, he criticises, are failures to bring and hold the lower jaw forward. Moreover, the *extraction* he advocates, along with Dr. Case, *does not bring a restoration* to a proper contour at all, in the face. Rather it permanently sacrifices a fulness, and brings lines that are *as much at fault as the condition* he has criticised, where *no extraction* was resorted to. The Doctor has claimed that Dr. Case has "proved beyond all question" that extraction is necessary to bring the highest beauty to the faces of a certain class of patients over fifteen years old. This assertion I deny. Dr. Case is an authority on some mechanical methods, but is certainly seriously at fault in many facial problems.

The method advocated, of cutting or lancing after regulating, is to be condemned, for it destroys tissues needed to rebuild attachments. This lancing is recommended only after teeth *are in their normal positions.* Then why is it necessary? If a tooth is moved *through the bone,* why not expect to find a hollow where the tooth was? Why open into an uninfected space? If those teeth are put into their right places they will not be so very difficult to retain, and no absurd lancing is required. The essayist has mentioned two retainers, but has shown neither, and from the description given I must conclude that they are *not efficient, particularly in holding rotated teeth,* and *maintaining the correct relation of teeth and jaws.* Personally, I find no one or two retainers sufficient. I use fixed and removable ones, depending on the case, the patient, and what has been encountered in the regulating. Have used plates with metal clasps projecting between teeth, and others over the interproximal spaces, clasping the teeth on the buccal surfaces. I have found skeleton retainers, made after the Jackson method, of great service, in some instances. But *at the root of all retention* we must know that *early regulation, at or before the eruption of the lower incisors,* provides the best retainer, *the first deposit of alveolar bone about the teeth in their correct positions.*

Irregularity is shown in the *temporary teeth,* in the incorrect relations of jaws, and in the *absence of proper growth spaces* that provide room for the regular eruption of the permanent teeth. The time for regulation is as *early as you can handle the little patient.* This should be from four years up to seven; beyond this the highest success in regulation and retention should not be expected.

Dr. W. S. Locke (Closing discussion): While I thought I might stir up something, I am surprised at some things that have been said. Dr. Casto has misinterpreted me and misquoted me, from beginning to end. It is hardly necessary for me to answer such a discussion in any other way than to refer you to my paper and his statements, asking you to compare them.

There are several points, however, I must not allow to go unanswered. He refers to the fact that our patients should be taken in charge at a very early age. I want to say, as to that, that a large per cent. of patients do not present themselves for treatment until pride forces them, and then they are in their 'teens; consequently we find at times conditions where irregularities cannot be corrected without extraction, to get the best permanent results. He says I place my patients under a general anæsthetic. I did not mention the word "general" at all. I use gas or ethyl chloride; in some cases, nothing at all, as it is a very minor operation. He puts great stress upon the awful dangers of this operation, in touching the peridental membrane, or opening of the tissues at all. I do not touch the peridental membrane, but if I did, what of it? If what he says is true, it would be dangerous to scrape the tartar from the teeth, or as dangerous as that of infection, by the extraction of a tooth. I do not apply this operation in all cases; I said I have applied it in most all types of irregularities.

He has referred to my drilling *over* the apex of a tooth. I made special mention of the fact that I did *not* drill over or near the end of the root, but on both sides of it. He made the foolish statement that I moved a tooth in a minute. I made no such statement; did not consider that the time had any bearing on the subject, and so did not mention it. As a matter of fact, it took some weeks to move the cuspid spoken of.

The Doctor speaks of moving the molars distally, and I will say to him that when all of the molars are in position, no matter how much they have drifted forward, they cannot be pushed backwards. The moving backwards of a second molar, in the average-sized mouth, one-eighth of an inch, would open the bite at the incisors more than one-fourth of an inch.

Dr. Casto: Dr. Locke, you refer to the rebuilding of new tissue; what kind of tissue do you mean?

Dr. Locke: Connective and cellular tissue. This curetting of the tissues is to stimulate their new and rapid growth, causing an almost immediate tightening about the teeth. The objections given by Dr. Casto to this procedure are not of any moment, as he has not tried, or even heard of, it before. I would not consider him capable of judging.

He says I do not read. I thought I did, but if that is true, it proves my statement that it takes but few brains to regulate teeth as compared to retaining them. Strange to say, with so few brains I believe I could show that I handle as many cases, and am quite as successful as the average orthodontist.

I regret that I cannot answer Dr. Ross' questions without models. Sometimes it is, furthermore, necessary to have profile facial casts, or photos, to assist.

In answer to Dr. Barnes' statements, I will say it is quite true that the force of mastication has everything to do with the retention, and it helps to strengthen my idea that the more teeth you move the more uncertain retention becomes. As to the statement that Dr. Case is only a mechanical man, I want to say to you that Dr. Calvin S. Case is not only a mechanical man, but one of the most scientific and successful orthodontists in the world.

In both operations I spoke of, and the use of Dr. Fletcher's methods of retaining, all I can say is, if done or used properly, you will find them of great value. I ask Dr. Barnes to give them a good, faithful trial, and I think he will be convinced.

WHAT THE INLAY HAS ACCOMPLISHED AND ITS PRESENT STANDING.*

By Dr. N. W. Emery, Fond du Lac, Wis.

In considering this live subject, I have selected what I am pleased to call the greatest relief, to the dental patient and operator, that has come to the profession since its inception, almost. Inlays are filling a place today in dentistry that, if prophesied a few years ago, would have been ridiculed. True, the present inlays fall short of an ideal method or material, but through their stages of evolution will surely solve the problem of an ideal restorer of lost tooth structure.

In the beginning they passed through the crude stages: first, the glass products and the different materials that followed, and as to their shortcomings you are all familiar. Until today we have the different porcelains passing rapidly through their stages of evolution in the direction of perfection, so that now we have a porcelain product with many creditable features, and that does not require fusing. So it looks as though the ideal filling material is coming into view. Then we have the gold inlay and its great field of possibilities. Large restorations of posterior teeth and anchorages for bridges, and as it enables us to avoid approaching near the pulp, it is of untold value, for this is a question that is agitating the dental world of today.

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*Read before the Fond du Lac Dental Society.

The writer has had the privilege of seeing the entire lingual portion of a cuspid, including mesial and distal surfaces as far root-wise as the cervical margin, restored with every indication of a permanent operation, and, from an esthetic point of view, one would scarcely know from a buccal or casual observation that anything except a very small occlusal gold-filling had been inserted.

Think, gentlemen, what a saving this is, and that it does away with that objectionable band so destructive to gum tissue. There are operators who, when a tooth has been lost, will, by clever manipulation, construct a porcelain shell-crown and fuse a porcelain facing to it, doing away entirely with metal in the construction of the work. I insert this, though strictly speaking, it is not an inlay, but its method of construction being similar, I included it for elaboration of the inlay principle.

In speaking of the gold inlay, we briefly spoke of its possibilities, one of which was its use as anchorage for bridges, of which I would like to speak more fully. It is a well-known fact with the profession that it is not a pleasant thing for the dentist or his patient to be obliged to mutilate or destroy a perfectly sound, or nearly sound, tooth to secure anchorage for a bridge.

Case in Practice.

Not long ago I had the privilege of examining a case where one of the lower centrals had been lost, the other central and lateral having formally been devitalized to prevent future trouble in the treatment for pyorrhea. The canals were sufficiently enlarged to receive an 18-gauge round platinum wire and the lingual portions, proximate to the space caused by the lost tooth, cut away sufficiently to receive a gold inlay which was constructed with contour sufficient to perfectly fill the space caused by separation which had taken place because of former trouble. A facing was selected which conformed in shade and size to the natural teeth, the facing was then backed with gold, the whole united and set in place. The result was certainly pleasing, from an esthetic point of view, and, I believe, was more permanent than it would have been made by the use of any other means that I know of.

In considering this subject I have been impressed with the thought that the inlay is not receiving from the dental profession the attention its merits deserve. It is true there are men who are giving nearly their whole time and attention to this class of work, but many of us have been pleased to consider them cranks and to say that the inlay would soon be a thing of the past. But, in conclusion, I must say that I have become convinced that to the inlay principle and its changes that are to follow we must look for an ideal restorer of lost tooth structure, and I do believe that ere long we will have a method and material that will give us the ethical properties of the porcelain, the plastic properties of cement and the durability of gold.

EXCHANGE OF PRACTICAL IDEAS

PRACTICAL IDEAS.

By F. B. Spooner, D. D. S., Brooklyn, New York.

A No. 7 handpiece will often spin round when not held in hand. This shows friction somewhere. I spent some time studying the problem. I suggest to take the sheath off the handpiece, and hold a sandpaper disk around the spindle. Let the engine run, and the rough place will be smoothed off. A little effort in this direction will improve, if not entirely remove the cause.

To Mend a Broken Engine Cord.

When your engine cord breaks the common way is to join with thread. This takes time, and is clumsy. Flow sticky wax over the severed ends, and while hot join together, first moistening your fingers. Roll the ends together, allowing them to overlap. Or cut the ends on a slant, bring them together, and see that the wax is very hot, and incorporates with the fibre. This makes a neat, compact joint.

To Sharpen Hypodermic Needles.

Hypodermic needles will get dull. Put the wire through the length, and grind the needle, and wire together. The wire can be withdrawn, carrying any bur with it that could clog the needle.

Management of Gingival Cavities Where Rubber Dam Cannot Be Applied.

There are times when we have cavities on the gingival margin, and it is difficult and painful to use the dam. I excavate and stop the flow of blood with peroxide of hydrogen. Cut a strip of crystalloid gold larger than the cavity. This I condense in the cavity, being careful not to allow the instrument to penetrate the sheet of gold. The part near the gum prevents the exudation getting into the proximal side of the gold. More gold must be quickly added before any moisture can get down. In a small cavity I have excellent results, and save much time.

How to Get a Fusible Metal Impression of One Tooth.

When a dentist desires to make a fusible metal impression of a tooth he makes a plaster cast, and takes in several. It is hard to separate the individual one for which a cap is desired. To do so with a saw is *slow,* and to cut around the gum margin with a bur causes the bur to clog at once.

I proceed as follows: Make a plaster cap of tooth, and the adjoining teeth. Take a small piece of modeling clay—composition will do, but not nearly as well—fill the adjoining teeth to the one desired, leaving a surplus above the filled teeth. Now we have the tooth isolated. The metal is poured in, the cast held under water and knocked out of the mold, and there is the tooth desired, with wide separation from teeth not needed. There is little to be trimmed from the gum margin, and this can be done with a coarse rubber file, working between the wide space. The cap is then tried on the metal tooth, and tapped with a hammer to place. All this can be done in about ten minutes. Driving the die with cap attached against a block of lead will aid matters. The cap can be reinforced with solder, and the tooth cut in the mouth with a stone to correspond.

HOW TO OBTAIN A CORRECT BITE.

By Dr. T. A. Lifsey, McDonough, Georgia.

I have experienced a great deal of trouble in getting a correct bite, as, no doubt, a great many others have.

I have tried a number of different ways, but the method that I saw Mr. F. W. Flote, L. D. S., demonstrate, at the British Dental Association, in London, last May, is the most satisfactory way I have ever tried.

Perhaps the idea is not a new one, at all, but it was to me.

For instance, take a full upper case—of course it will be the same with any other case—take impression, run model, wax up case, set on the six anterior teeth, by guess, tack on a piece of wax over ridge, where posterior teeth should be about the height the teeth should be.

Now, warm the piece of wax over ridge, try in the mouth, let patient bite down, and that will make prints of the lower teeth.

You can look in the mouth and see if the patient closes naturally. Next take an impression—preferably with modeling compound—of the lower teeth, run model, then set the model in the print of the wax that was made by the lower teeth, and fasten to the articulator. The advantage over the biscuit bite is, you can see if the patient bites correctly, and it takes no longer. You will not have to keep your patient waiting over 15 to 20 minutes for you to try the case in.

HOW TO REPAIR A MORGAN-MAXFIELD DISK MANDREL.

By Dr. E. T. LeDuke, Holyoke, Mass.

When the pins are broken off, take a small bur and drill close to the pins, through the collar, then take a nerve broach; small end to the hole, put your mandrel in a vise, take a pair of pliers, hold the broach and drive it tight; then cut off the broach and sharpen to point. Your mandrel is as good as new.

DEODORIZER FOR DENTAL OFFICE.

By Dr. Dayton D. Campbell, Ozark, Mo.

The addition of a fluidrachm of formalin to an ounce of good perfume, sprayed about your office, will keep it from smelling like a "dentist's shop".

A GRATIFYING METHOD OF FINISHING AMALGAM FILLINGS IN INTERPROXIMAL SPACES.

By L. E. Phelps, Toledo, Ohio.

After removing the matrix band draw back and forth a moistened strip of rubber dam as you would sand paper in finishing gold. Do this before the amalgam has set thoroughly and you will have an excellent cervical margin and a surface that will need no further polishing. If rubber is stretched no metal will overhang the margin.

AMALGAM MIXING.

By Chester C. Dobbs, D. D. S., Minneapolis, Minn.

In the many suggestions for mixing amalgam I have read, none are so simple as the use of an ordinary thumb cot, costing five cents at any drug store. I have used this method for four years, and find it the easiest and best way to mix a thoroughly incorporated and smooth batch of amalgam.

Expressing the surplus mercury through chamois, the filling need never touch the hands; the cot being sterile leaves it aseptic. It also prevents absorption of mercury by the operator.

A TRYING CASE—HELP WANTED.

By W. H. Pelton, D. D. S., Fostoria, Ohio.

I have a question; it may be out of order, but I hope it will not be voted down before it is answered.

The patient is a woman 70 years of age. I have been trying for two years to make an upper plate for her. I have no trouble to fit the plate, but as soon as it is put in the mouth she begins to vomit. The first plate was of rubber, and I cut the palatal portion away until it resembled a lower, and still she would vomit. I gave her Dover's powder, belladonna and everything I could read of, to control the vomiting, and made her an aluminum plate. One thing singular about the case, she can wear the plate with ease when she lies down, but as soon as she attempts to sit up her trouble begins. Will someone advise me, through THE SUMMARY, how to overcome this trouble?

COMPILATIONS

THE TREATMENT OF CHILDREN'S TEETH.*

By C. N. Johnson, M. A., L. D. S., D. D. S., Chicago, Ill.

This subject naturally divides itself into two parts—the management of the child, and the management of the teeth. Temperamentally, physically and nervously, there is so much difference in children that to ignore this factor and prescribe a set method of practice for all cases would result in confusion, failure and disaster.

The first visit of a child to the dentist is usually a momentous occasion. Sometimes it is undertaken with the direst dread, at others with the most eager anticipations; all dependent on the point of view given the child by the parent. The dentist's duty is to study the temperament of the child most carefully, and he should not content himself with anything short of obtaining a perfect mastery over the child, at least during the time the latter is in his office. The means to be employed in gaining this mastery are as varied as are the manifestations of juvenile human nature—probably the most varied of anything in psychological study.

The chief factor, the fundamental basis of success in controlling children, is the exhibition of extreme kindness and the cultivation of infinite patience. Unless a dentist can bring this kind of an attitude to the management of his young patients he would better not attempt their treatment. And yet there are some children so unruly by nature and so spoiled by false training at home that to obtain command over them in the dental chair the operator must be firm with them almost to sternness. If the parent has no control over the child, as is sometimes unfortunately the case, then the dentist should be the means of giving the child what is probably its first real lesson in discipline. And let it be said that no class of men, not even medical practitioners, are placed in so favorable a relationship to these young patients for the purpose of instilling into them obedience and stability of character as is the dentist, and if the members of our profession would only rise to the possibilities of their opportunities in this regard they would do no small part in developing true manhood and womanhood in the rising generation. To bring up a child with no idea of individual responsibility, to foster a tendency toward avoiding any duty of a disagreeable nature, to always sprinkle roses for the child to tread upon, is weakening in its effect and results in deterioration of character and the pitiable failure to meet the emergencies of life as they inevitably arise.

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*Read before the G. V. Black Dental Club of St. Paul, February 27, 1907.

A discriminating dentist can do much in his professional relationship with these young minds to develop in them stamina and force of character, and it is sometimes the case that the first real experience of facing and properly meeting an issue is fought out in the dental chair. To be successful in the management of children under these trying circumstances a dentist must be a rare student of human nature, and he should early learn just when to be yielding and tender, and when to be firm as adamant. But let it always be remembered that, under no circumstances, however trying the case may be, should he allow himself to lose his own self-control and display temper or impatience; and whenever it has been necessary to be firm, and even severe, he should invariably soften his demeanor by the utmost kindliness and an unmistakable interest in the little patient's welfare. To gain complete control of a child who previously has never been controlled by any one is no mean achievement, and the sense of satisfaction in the good attained, is well worth all the effort it requires to accomplish it.

One feature of the management of children in the dental office which in this enlightened age of child study would seem unnecessary of mention, but which unfortunately is still a factor in some instances, is the habit of deceiving the child as to what is to be done. There is no more fatal error, no more disastrous or appalling wrong, than to deliberately deceive a child, and the result of one such deception can never be fully estimated. To the dishonor of some parents we are occasionally asked, even in the beginning of the twentieth century, to become a party to such an iniquitous practice, but no dentist of any self-respect or manhood will ever enter into such a conspiracy. It is always well, of course, to destroy in the mind of the little patient any sense of fear by making as light as possible of the probable severity of the operation, and by the utmost tenderness and gentleness of demeanor; but to deliberately assure the child that a certain operation will not hurt in the least when it is almost certain to hurt, and worse than this, to pretend to be applying some medicament to a tooth and then suddenly seize it with the forceps and extract it is a monstrous and cruel wrong.

Ordinarily, the first visit of a child to the dental office should be so managed, if possible, that no work of a disagreeable nature is undertaken. Mothers should be instructed to bring their children early, even before the necessity seems apparent, so that the child forms the habit of having the teeth examined and gets acquainted with the dentist. Thus, when fillings have to be made the ice is already broken and the way made easier. If the case has been deferred till toothache occurs, and the visit is one of necessity for relief, the only operative procedure undertaken at this time should be merely to stop the pain. A sympathetic and personal interest should be manifest for the little sufferer, and the impression formed at this first visit that the dentist is a kind-hearted gentleman and not at all to be feared. When once confidence is attained it will usually be found that most children will tolerate any necessary discomfort in having their teeth cared for provided their pride is appealed to in the proper manner, and they are upheld as little men and little women.

But the dentist should have a care not to overtax the courage of a delicate child, and should constantly watch with the keenest eye for signs of wavering or undue nervous tension during an operation. It is sometimes better to do temporary work and retain the confidence of the child than to always attempt permanent operations and thereby run the risk of creating distrust and dread. This is particularly true of operations on the deciduous teeth where the object is more to keep them comfortable for a few years than to do artistic and permanent work.

The materials for filling deciduous teeth are limited to those easy of insertion and not too exacting in their requirements. When cavities occur in the proximal surfaces of the incisors they are usually better managed with oxyphosphate of zinc than with anything else. They are ordinarily shallow, and the fact that they are frequently quite sensitive prevents the operator from giving them any appreciable retentive form. Cement can therefore be used when nothing else will remain in place. These teeth do not often call for much operative interference owing to their early loss to make way for the permanent incisors, but with the deciduous molars the case is different. They remain four or five years after the incisors are gone, and the problem of saving them when they decay is sometimes exceedingly difficult. They should be given early and frequent attention when the mouth is susceptible to caries, with the aim always of checking the disease and keeping the teeth comfortable for mastication. The reason for this is not only that the child shall be enabled to properly prepare the food for digestion during these early years, which of itself is very important, but that proper habits of mastication are established at this impressionable age. If the deciduous molars are allowed to decay and become sensitive the child involuntarily forms the habit of bolting the food without proper mastication, and this habit once formed is likely to persist through life. There are many people today who do not masticate their food to the extent which their present masticating apparatus would warrant simply because they have formed the bad habit of bolting their food during youth.

Simple cavities in the occlusal surfaces of these teeth are not difficult to manage. They may be filled with oxyphosphate of zinc, oxyphosphate of copper, pink base-plate gutta-percha or amalgam, as is indicated in the individual case. Amalgam is more reliable than either of the others provided a proper preparation of the cavity may be made and it does not reach too close to the pulp, but sometimes we are obliged to temporize with cement or gutta-percha.

The most difficult problem we meet in the management of deciduous teeth is to properly treat cavities occurring in the proximal surfaces of the molars. There are several factors in these cases tending to make them troublesome to control. They are usually sensitive, making them difficult of proper preparation for the retention of amalgam, which is the only permanent material we have for preserving them. Unless fillings are reasonably well anchored in these cavities they are likely to be loosened by mastication, and if we attempt too deep anchorage we are likely to approach the pulp. In fact these teeth do not usually present much area of tooth tissue in which to form a cavity and it takes but little penetration of decay to involve the pulp. It is always best to avoid irritating the pulp if possible, and to this end it is frequently advisable to use some other kind of material than metal to fill them.

Much of the discomfort experienced by children in mastication is due to the packing of food in the interproximal spaces wherever decay has occurred in these surfaces. If cement is used it very rapidly wears away so as to present a space between the teeth, and thus invite a lodgment of food. Not only this, but frequently we find the teeth drifting slightly apart as the jaw expands preparatory to the eruption of the permanent teeth, all of which increases the difficulty. In cases where amalgam cannot be used and cement is unreliable the patient may be made more comfortable with gutta-percha than any other material, though this is, of course, more or less temporary in its service.

The problem is greatly complicated where two cavities face each other, and in some instances the surest method of making the teeth serviceable for mastication is to bridge across the interproximal space from cavity to cavity with gutta-percha. This is the only material by which two cavities may be joined in this way on account of the individual movement of the teeth. If a rigid material like cement or amalgam is used the filling will very shortly be loosened from one cavity or the other, but gutta-percha being more or less yielding, will accommodate itself to the movement of the teeth without injury. If this plan is followed provision must be made to prevent the gutta-percha from being forced down between the teeth in the interproximal space, and this may be accomplished effectively by placing a metal guard of gold, platinum, or German silver across the interproximal space, allowing the ends to rest on the gingival walls of the cavities and building the gutta-percha over it. This protects the gum most perfectly and admits of serviceable mastication without discomfort. As the gutta-percha is worn away, it may be renewed from time to time, and although this is at best a temporary operation, yet it is, in some of these troublesome cases, the only procedure by which the teeth may be made serviceable.

In pulpless deciduous molars the case should be treated in the usual way, except that some care should be taken not to introduce medicines which have a disagreeable taste or odor. It is always desirable with children to avoid as much as possible anything which tends to create prejudice against having dental operations performed, and usually these deciduous cases may be brought under control by the use of the essential oils which are less objectionable than some of the more powerful antiseptics. Oil of cloves seems to be one of the best for this purpose.

Treatment of the Permanent Teeth During Childhood.

From the time the permanent teeth begin to erupt, at about six years of age, till the deciduous teeth are all lost and replaced by permanent ones, at about twelve, the care of the erupting teeth is a very important consideration, and in mouths where there is great susceptibility to decay of the teeth the problem of saving the permanent ones is sometimes perplexing.

When the incisors begin to decay in the proximal surfaces shortly after their eruption it is seldom that we can insert permanent fillings in them at once. It is, of course, better if this can be done, thus making one operation sufficient and creating in the mind of the patient the impression that dental operations are effective when properly performed. But there are many patients who lack the fortitude at such a tender age to go through the necessary tension to have thorough work performed, and it is better to make several operations on the one tooth at different times and preserve the courage of the child than to attempt a perfect piece of work at the outset and break the spirit of the patient, thus creating a dread of having dental work done.

But let it be borne in mind that just so soon as it is found possible to have the temporary fillings replaced with permanent ones this should be done. In these susceptible cases the teeth can never be made too secure against decay, even by the very best work the operator is capable of, and it is therefore well not to trust to temporary work longer than necessary. But in this connection it should be said that the attempt to use gold before the child is sufficiently under control to admit of doing a perfect piece of work will as certainly lead to failure as will the use of other materials more temporary in their nature. We must have a good technique in any operation calculated to be permanent, and the requirements of gold in this respect are more exacting than for any other filling. In some instances we may employ inlay work in children's teeth before they will tolerate the exactions of gold foil filling, and thus obtain a better result than by the use of any of the plastic materials.

Each case should be studied carefully with the idea of learning the temperament of the child and knowing how to gain such control as shall permit of the best service. The practice of dentistry in its highest attainment is a constant study of conditions, conditions of the mind, conditions of the teeth, conditions of the surrounding parts—all of which materially affect us in the treatment of every case. And in this connection there is no other one thing of equal importance in the ultimate saving of the teeth and the maintenance of a healthy mouth than the establishment during these early years of the correct principles and practice of oral hygiene. It is not the province of the present paper to go fully into this phase of the question, but it should be said in passing that no dentist is doing his full duty to the rising generation who fails to impress upon his young patients the importance of properly caring for the teeth and gums or who does not give full instructions as to how this should be done. This should also be followed by a constant surveillance to see that his instructions are carried out.

A very necessary consideration in the treatment of children's teeth is to watch carefully the condition of the first permanent molar. This tooth is one of the most important in the entire arch. It is the chief standard-bearer of the jaws during the period when the deciduous teeth are being lost and the other permanent teeth are coming into place, and if lost early it invariably results in the jaws dropping closer together than normal, which detracts materially from the force of character of the face. If it is lost subsequently to the eruption of the second permanent molar and the bicuspids it produces a tipping of the other teeth into the space so as to disarrange the occlusion. No arch is ever perfectly normal with the first permanent molar missing, and even in those cases where the space has entirely closed by the approach of the second molar and biscuspid and where the occlusion seems good from the buccal aspect it will be found defective if models are made and a careful examination is given the lingual aspect.

In view of its early eruption it is peculiarly susceptible to decay, and should therefore be watched most carefully and preserved by filling. Where it has been extensively broken down by caries before it comes to the dentist it may usually be restored to full functional usefulness by the inlay method, and no pains should be spared to place it in a condition of health and service.

As has already been stated, one of the chief functions of the dentist in his treatment of children is to educate them to the importance of properly caring for the teeth, and in respect of the first permanent molar it may be said that this education should begin with the parent before the child is of responsible age, so that the frequent error of mistaking this tooth for a deciduous one and allowing it to go by default should not be committed. Parents should be instructed to bring their children to the dentist nor later than the third or fourth year, and then the co-operation of the dentist, the parent and the child should result in every individual growing up with a good serviceable set of teeth.—Dental Review.

REFLECTED SHADOWS ACCOMPANYING PORCELAIN FILLINGS.

By C. N. Thompson, D.D.S., Chicago, Ill.

In restoring the lost parts of teeth with porcelain inlays, an exact match in appearance is probably considered the most difficult part of the operation, the success of which depends upon the exactness with which we produce the natural conditions. But depending as we do upon materials that differ in physical properties to the extent that porcelain and cement do from the natural tooth, we are compelled to make use of certain artifices intended to offset the shade that falls as a result of the unnatural reflection, refraction, absorption, and transmission of light by these materials.

Color, of course, is a factor of great importance, and in itself would constitute an ample topic for an entire paper; but when we remember that it is quite impossible to invisibly repair a broken porcelain tooth by means of cement—in fact, almost impossible to even replace the fragment in any way so that the fracture will be invisible—it would seem that color is not the only factor in the final appearance of finished porcelain fillings. The fragments being absolutely exact in color, translucence, form, and thickness, and the cement being of a good color, it is evident that aside from color there are other phases of the phenomena of light which affect the finished inlay detrimentally, unless forestalled. The only way in which the fragment of a broken tooth can be replaced—concealing the fracture—is to moisten both with some liquid of the same reflective index as the tooth, which in absolutely filling the space, cancels the reflective surfaces of the fracture, both internally and externally, thus permitting the light to proceed as it did before the break occurred.

The Cement Problem in Relation to Color.

Water answers admirably, but unfortunately it, like all other translucent substances of which we know, is of no practical value as a cement, so we are obliged to return to zinc oxyphosphate and its gloom, because it is adhesive. It may not be out of place to mention that although Ascher's enamel cement has practically no adhesive properties, and is consequently of no value in retaining inlays, its power of transmitting and reflecting light is so nearly equal to that of the natural tooth-enamel that certain shades of it interfere very little with the free passage of light, and it therefore comes very near being ideal in appearance. It is unfortunate that the good qualities of the cements mentioned cannot be incorporated into one, for a cement of the proper color, translucence, adhesiveness, and strength to fill all requirements, would mark the beginning of the end of the inlay question.

Difference Between the Natural Tooth and Porcelain in Reaction to Light.

A study of the normal tooth reveals the fact that its exact reproduction is impossible, yet to restore tooth-structure in appearance with porcelain without due consideration for the details of the make-up of the normal tooth is a mistake, for an examination of a cross section of the natural tooth reveals the enamel nearly transparent and the dentin nearly opaque. Compare this with a cross section of a porcelain tooth, and it is not hard to discover the reasons for some of our difficulties, as well as to know that there must be method in our efforts if we would secure results.

Dentin is so nearly opaque that it transmits light but feebly. Its opacity seems to be due, as much as to anything else, to the condition of its external surface, which is without glaze—under the magnifier it seems rough, like fine sandpaper. The external surface stops the light as do crushed transparent substances generally—as for instance common salt—for the reason that the rays of light are so often reflected among the particles on the surface that they are scattered into a multitude of crossed reflections that appear white, and therefore cannot enter. Thus it follows that whatever surface will not admit light will also refuse to allow a reflected shade to pass; consequently if the dentin can be restored with a very high-fusing porcelain that becomes densest before it glazes, that presents a vitreous surface resembling sand-paper, and of the color of dentin, we have produced a foundation for the filling that will not absorb sufficient light to cause a shadow, and which, if not glazed by a subsequent baking, will still retain the power to arrest transmitted light, no matter how the colors and enamel are laid on afterward.

The only phase of color I shall mention is that of red. A pulpless tooth usually assumes a grayish aspect, probably due to the oxidation of the contents of the tubuli of the dentin, whereas there is something in a healthy tooth that gives it a lifelike appearance. We all know that the dentin immediately covering the pulp is pink, and if it be a fact from any cause that there is a red or pink tinge to the dentin close to and surrounding the pulp of a vital tooth, may it not be that the color of the normal dentin, if analyzed, would reveal red? Following this thought, it has been the custom of the writer to make use of red in deep cavities, laying a little of it on the matrix beneath the foundation body in the vicinity of the pulp, and the result produced warrants the supposition that red is present in vital teeth, and is necessary for the production of a lifelike filling.

Let us study the normal tooth filled with porcelain as it is seen in the mouth under normal conditions.

First, it is covered with moisture, which partly veils small mechanical defects, modifies the superficial, structural, and physical differences of the filling and tooth, fills the interspaces of the cement at the surface, and reflects a portion of the white light.

Next, through it we see the convex surfaces of the tooth and filling where another portion of the white light is reflected, and where reflections from nearby objects begin to appear. The tooth-enamel is as though polished, differing from the glaze of the porcelain. However, all teeth are not alike in this respect, even those in the same mouth may differ. But seldom do we see natural tooth-enamel having as high a finish as well-glazed porcelain, and consequently it improves most porcelain fillings to polish that portion next to the labial cavity margin after it is set because it makes the surfaces more nearly alike. Comparing porcelain enamel with the natural structure, we find that it is not difficult to produce a substitute that resembles it in a general way—until its reflective and refractive powers are considered. Its translucence is very much the same as that of natural enamel, but as it is only a fused translucent crystal covering the inner parts of the filling, it becomes an elliptical cavo-convex lens, with all the abortive phenomena which accompany such instruments. The natural enamel with its radiative arrangement of enamel rods, whose refractive and reflective indices vary in accordance with their various positions, produces an entirely different instrument, for at the median line of the teeth the enamel rods point nearly toward the eye—those on the same perpendicular plane, while those on the sides are at right angles to the long axis of the tooth, which must produce a reversal of the reflecting index of each rod and consequently of the portion of the tooth which they occupy. This in the writer's opinion explains why an approximal gold filling appears not to darken its approximating neighbor, if it be a sound one, to the extent that it would if filled wih the porcelain, because natural enamel does not accept impressions as does the porcelain enamel, on account of the repeated reflections among the rods; also explains why the appearance of most approximal fillings is improved by a very thin layer of opaque white at and on a line with the contact point, or a trifle more to the labial on the approximal exterior, which prevents the passage of the reflected shade.

Other Optical Principles Involved.

As a consequence of the rectilinear motion of light. opaque bodies cast shadows, which fall as a result of some obstruction to the free passage of light, and their location, extent, and intensity are dependent upon the extent to which the light-rays are transmitted, reflected, refracted, or absorbed by the obstacle.

A shadow is partial darkness caused by the intervention of something between the space contemplated and the source of light. Reflected shade is that phase of the phenomena of light that affects porcelain inlays following final insertion.

All illuminated bodies scatter or reflect light, and are distinguished from each other by the kind and amount of light they send to us, their power of selective absorption and surface reflection determining the color. If the source of light be a point, as in the electric arc light, the shadow is sharply defined; if, on the other hand, it comes from a luminous surface, as the sun, the edges of the shadow are fringed and imperfect, due to the angular magnitude of the sun. For example, the shadows of minute objects disappear almost immediately in sunlight, whereas the same objects in the arc electric light cast a well-defined shadow for a considerable distance if thrown upon a screen. This explains why porcelain fillings are more conspicuous in artificial light than in sunlight, the shadows thrown appearing more definite.

When light passes from one optical medium to another, a portion of it is always turned back, i. e., reflected. This partly explains why a highly glazed filling that does not appear correct may be improved by grinding or polishing. A slight roughening of its surface causes less direct exterior reflection, and although it thus renders the surface slightly more opaque, it renders the deeper coloring more prominent, because light is reflected regularly and more fully by a glazed surface.

One of the fundamental laws of optics is that the angle of incidence in light-rays is equal to the angle of reflection, which helps us to understand why the shadow that is thrown upon one object by another may be passed on and accepted as the real shade of the object thus thrown in the shadow, particularly when the shaded object is convex, as are the teeth—which greatly increases their range of power over the plane surface for accepting and reflecting impressions that occur at right angles to the perpendicular, as are the approximal surfaces of teeth, where shade is most apt to occur, and usually does, particularly if that surface be discolored, decayed, or filled. In any event, whatever shade exists in a given approximal space is reflected back and forth from one surface to the other until it reaches a point on the convexity of the tooth that will reflect it to the eye, which establishes the limits of the shade at that point.

For example, a gold and a porcelain filling in contact between the central incisors: The porcelain filling, even though an exact match in color, will appear darkened as soon as placed in a cavity fronting a gold filling, because instead of returning the reflected shade to the gold again, its convexity sends the shadow of the gold to the eye, which gives it a saddened appearance. But if the filling be not scientifically constructed it will absorb a portion of the shadow and return it to the eye by internal reflection, which will make it appear still more darkened. To offset the discrepancy between artificial and natural enamel in transmitting impressions, it becomes necessary, in protecting approximal porcelain fillings against side shadows to cover the approximal exterior of the filling fronting the shade with a thin layer of opaque white, which practically prevents shadows from entering the filling, thus allowing it to appear as intended, because it cannot reflect a shade that it does not receive.

Reflection always accompanies refraction, which phenomenon causes much of the uncertainty of results in laying on colors, because the enamel being translucent, light passes through it to the pigments, where color is established, and being returned to the eye by internal reflection, in emerging through the enamel it is refracted and reflected at both surfaces of the enamel, and scattered by its convexity. This, in a meager way, in connection with the fact that we cannot see our colors until after the filling is fused and finished, is the reason why the color problem is so mystifying.

A solid body immersed in a liquid having the same reflective index as the solid vanishes, and light in passing through media of different refractive indices is always reflected, and this reflection may be so often repeated as to render two transparent substances practically impervious to light. An opaque white is produced in this way. The blackest clouds owe their gloom to this repeated reflection, which diminishes the transmitted light when seen from beneath; hence, also, their whiteness by reflected light. Common salt is white from the same cause, and transparent bodies generally, when crushed to a powder—because, though the particles transmit light freely, the reflections at their surface are so numerous that the light is scattered as is sound in echoes. A piece of glass is nearly transparent; crush it, and it becomes an opaque white; wet it, and it becomes semi-translucent. If it and the water were of the same reflective indices, the glass would disappear and the water would appear clear again. This partly explains why a filling of porcelain becomes a trifle more translucent, though a trifle darker after it is set, and becomes filled with moisture from the saliva; it also reveals one phase of the shadow that falls from the cement, in that the darkness of the cement is emphasized by the gloom produced by its repeated reflections in the body of the filling which retains it. It also suggests that the nearer a porcelain enamel can be based upon this plan—that is, two crushed crystalline substances of unequal refractive indices and of unequal fusing-points, the one to be suspended as it were, in the other, as is the crushed glass in water—the closer we will be to the production of an enamel that will come as close to nature as we could ever get, because while it would appear quite translucent, yet it would not transmit light as freely as some of our present enamels, and therefore would be more natural.

Internal Shadows.

The only rational plan for controlling internal shadows, which in the main are caused by cement, is to have the latter covered by the natural tooth, so outlining the cavity if possible that the eye will find tooth-substance interposed between it and the submerged cement—between the tooth and filling. Strictly labial cavities are of course not included in this statement, yet they are partially protected in another way, for most labial cavities occur upon the gingival third of the tooth-crown, and the enamel necessary to reproduce nature is very thin at that point. This permits a correspondingly greater amount of foundation body, that if properly made will not transmit much reflection from the cement below it, and the amount that it does show will depend upon how thick the enamel is, for it will transmit such reflection readily, allowing the cement to show through at the margins. Fillings made in this way are affected less by lip shadows than if the enamel be thick or the filling semi-translucent.

In approximal cavities it is usually possible to cut beneath the labial plate, at least slightly, so that the submerged cement is hidden, as it were, below it, to the extent that light, in order to reach it through the filling, must strike the surface of the filling at such an angle that it would be reflected away, so that the tooth would be lighted by direct rays and appear as intended.

Definite shadows from cement imply that light, after being permitted to pass through the porcelain, must fall upon it, some of the light being absorbed, the diluted remainder being reflected back into the filling and returned to the eye direct, producing a saddening effect. Besides, reflection from the cement is increasingly darkened in proportion to the amount of porcelain the white light traverses in getting to it, and this applies likewise to the shadow.

When a filling is correct before cementation, and looks dead or leaden afterward, it is probable that its changed appearance is the result of light passing through several layers of semi-translucent color-pigment, each one selecting its portion of the white light, thus filling the light that reaches the cement with gloom, which when reflected back through the filling, throws the whole into discord, producing a drab or gray—a color obtained by mixing the primary pigment colors. Such results are possible only when the filling transmits light too freely; because had the light been reflected back by the foundation body after penetrating the colors, as it should if correctly made, there would have been no light to reach the cement, consequently none to be reflected. Therefore the only detrimental effect that could be produced by the cement would be in rendering the filling more opaque and a trifle darker.

Fillings that appear correct from one direction and not from another are not sufficiently protected. This difference in appearance is due to reflected shade, which the faulty construction of the filling permits.

There is probably no way to entirely prevent shadows from being reflected into porcelain fillings, yet it is possible to confine both their extent and intensity to narrow limits, as follows:

First: By cavity formation, in order to conceal the submerged cement.

Second: By using a thin layer of opaque white on the approximal exterior of the filling that will prevent the entrance of reflected side shade.

Third: By making use of a foundation body of the same color and opacity as dentin, having an exterior surface which, being scintillant or faceted like the diamond, will act as a barrier to the passage of the light in the same way as does salt or crushed glass, which seems the only way of reproducing natural conditions as regards the phenomena of light.—Dental Cosmos.

REMOVAL OF DIFFICULTIES WHEN SEARCHING FOR THE ROOT-CANALS OF MOLARS.*

By Professor Dr. Julius Scheff, President of the Imperial and Royal Dental University Institute of Vienna.

All dentists are perhaps agreed that searching for the buccal root-canals of upper molars and the mesial canals of lower molars is not only occasionally tedious and time-wasting, but in many cases impossible of accomplishment—first, because the entrance is mostly difficult, but more particularly because the conditions of light in the field of operation are, as a rule, not sufficiently favorable. Those cases in which the opening of the canals is narrowed we will here omit, because their treatment under ordinary conditions would scarcely lead us to expect a successful result.

Every dentist whose intention is to obtain a satisfactory result in root treatment, either temporarily, or, in the most important cases, permanently, must confess that now and then success may fail us with molars, viz., when it occasionally happens that their root-canals are inaccessible for proper treatment either operatively or with medicaments. We must here also remember those cases in which, in consequence of the situation and position of the roots, the entrance of their canals can scarcely be found, whereby they offer insurmountable difficulties both with regard to their clearing out and to their aseptic and antiseptic treatment. To surmount these difficulties does not always come within the reach of possibility, for with the frequent kinkings—angular bending of the point of the root—the complete clearing out of the contents of the root can scarcely be accomplished. Even if, within the last few years, the most varied medicaments have been recommended for the sterilization of irritant and decayed pulp remnants where equally excellent results were obtained, still the only correct method, which scarcely ever fails us, is that of having completely cleared out the root-canal.

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*From the cases treated at the Imperial and Royal Dental University Institute, Vienna. Translated from the Oesterreichisch-ungarische Vierteljahrsschrift fur Zahnheilkunde.

Only where we have to deal with the removal of a pulp which has been previously killed can a complete guarantee be given for a successful result in the treatment of a root; it is questionable in the case of a gangrenous pulp. At all events, according to my experience, it is scarcely doubtful that a pulp which has been killed is better suited for further treatment than a partially or totally gangrenous pulp.

FIG. 1.

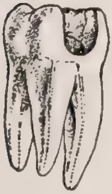
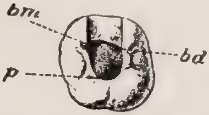


FIG. 2.



p—palatine; ***bm***—buccal-mesial; ***bd***—buccal-distal root-canal.

Whatever the conditions may be, of whatever kind the treatment to be adopted may be, it will always be the first and most important condition to get complete access to the root-canals. To obtain such access, however, in a suitable manner has not, so far, been accomplished by the method hitherto adopted. It may not be impossible that many colleagues employ the same method as I do. The roads which lead to the same goal are various. Mine is extremely simple, and has perhaps been adopted by many through compulsion. This does not prevent me publishing it. Publication is justified because in my clinic a large number of root treatments are carried out, including many roots of molars of the maxilla and the mandible; and I have observed that, especially in regard to beginners, the searching for the molar root-canals offers great difficulty. I have suggested that the exposure of the root-canals should be done in the most varied manner, and am finally convinced that my own method, owing to its simplicity, offers the possibility of doing the work more easily and better than has hitherto been the case. Without proceeding further to examine the different impediments which must be ascribed to the insufficiency of the method of treatment hitherto employed, I will proceed direct to the mark, in order to simplify the matter; and I must state in advance that we shall take upper molars, not lower molars.

A single method of treatment for all cases cannot be indicated, for this reason: no one case is like another, and it is, in fact, known that what may be useful for one case is frequently insufficient for another. One thing, however, cannot be denied, viz., that the inner surface of the buccal wall of upper molars, in relation to the opposite palatine wall, does not rise quite perpendicularly. Within the buccal wall, however, are situated the openings to the buccal root-canals, which, in consequence of their hidden position, are placed most unfavorably with regard to light. It is, therefore, the buccal wall chiefly which makes the finding of the canals difficult—indeed, now and then makes it quite impossible to find them.

Fig. 3.

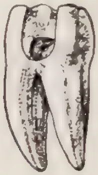
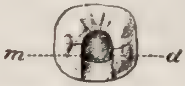


Fig. 4.



m—mesial; *d*—distal root-canal.

It is, consequently, quite clear that, through the removal of the buccal wall, the conditions in that direction may be altered and improved. If in this way we are able to locate the entrances to the root-canals, it serves to indicate to us how we must proceed in the further course of the treatment. There is here no intention to make proposals in regard to root treatment, or to offer new methods, or to say how the treatment is to be best carried out, since every operator is of the opinion that only the method practiced by himself is the correct one and will give the most certain result.

Involuntarily there comes to my mind a conversation with a foreign colleague when he paid a visit to my clinic. He expressed his astonishment with regard to the carefulness with which root treatment was carried out by my students, and observed that he proceeded in a much simpler way. He had never had a failure although he had already treated many thousands (?) in his "much simpler way." His treatment, in fact, was of the most simple kind. First, arsenic; on the following day opening up of the canal, amputation of a portion of the pulp with a suitable drill, and immediate filling with the material suitable for this purpose. Here we have a second, but poor, edition of Witzel's method of amputation of the pulp, without the knowledge and judgment of Witzel. Ultra posse nemo obligatur.

Fig. 1 shows a molar of the maxilla. It is quite irrelevant whether it belongs to the right or left side. The cavity extends from the mesial side up to the masticating surface, and the pulp is exposed. After opening up the pulp-cavity with a drill—following the application of arsenic or the injection of adrenalin—the palatine root-canal is easy of access, and its clearing out hardly ever causes any difficulty. Now, in order to find the buccal canals also, we should in the first place have to drill away a good deal of the internal wall of the tooth, which, however, does not always give the desired result, for this simple reason: the conditions of light as regards the cavity would become, if possible, still worse. If we are successful notwithstanding this, we are able, by correctly manipulating the mouth mirror and employing it continuously—always an unpleasant impediment to free working—to find the two openings. In most of the cases, even with this aid, we should reach the goal with difficulty; and, therefore, I hold it to be more correct to remove the buccal wall partly, or, if necessary, completely, before beginning the root treatment (Fig. 2). A more exhaustive description, up to the conclusion of the treatment, I consider superfluous; for everyone knows how he has to proceed when the root-canals are exposed at their entrance. In every case, when removing the buccal wall, we can mostly leave standing enough of its height to secure the retention of the filling which is to be put in at the conclusion of the treatment.

The procedure is not changed when the carious destruction proceeds from another surface than the one previously mentioned.

In mandibular molars (Fig. 3) the method, according to my idea, is more simple of application, because when looking for the canals we have only to remove that portion of the buccal wall which darkens the field of operation towards the mesial side. Sometimes, although rarely, the removal is superfluous, especially when the mesial canal on the outside is easy of access, i. e., when it receives a sufficient amount of illumination. Under favorable illumination it is also easier, after removal of the anterior external buccal wall, to reach the mesial canal, particularly when it exhibits two openings (Fig. 4). The reconstitution of the outer surface which has been lost can be made good with the requisite filling material, and certainly does not offer any difficulties, for both the palatine and the distal walls may be retained in their original strength, and in conjunction with the root-canals offer sufficient retention.

It is, of course, self-evident that the entire manipulation has to be carried out with the coffer-dam rubber applied to the tooth under treatment.—Quarterly Circular.

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SUGGESTIONS

REGARDING METALS.

C. L. Hungerford.

We do not know what metals are best for our use, by a great per cent., that are put in our hands—metals in which there is no expansion; metals in which there is no contraction; temperatures at which tensile strength, in which lack of immobility exists to the greatest degree. Just think what a valuable thing it would be to have a metal by which we could take an impression of a cavity for a porcelain inlay, and make an absolutely sharp margin, swage right into that and bake our porcelain right into the matrix, knowing it was exact. It is the speculative line I would like to hear Dr. Allen dwell upon, but he does not speculate.

I might say, incidentally, I have got my thumb and forefinger pretty well calloused, and have been able to take some of these low-fusing metals, such as the Richmond crown metal, melting them in a spoon, and when they commence to crystallize and harden in the form accessible, I can take them and manipulate them like a pellet of bread. They cool very rapidly, you know, being at that time of a temperature of about 130 or 140 degrees, and the discomfort from the heat not being as great as in the handling of hot gutta-percha. By this means I am able to get a perfect impression of a cavity, using fairly warm sealing-wax, or something similar, swaging it right into it, and make a very beautful matrix in that way.

It has been ascertained that Babbitt-metal is one of the compounds which contracts or expands very little; though many, and especially of those who do not attend dental societies, are still clinging to the old zinc for making dies for swaging purposes, not knowing that a die of Babbitt-metal produces a more accurate duplicate of the impression.

I want some of you gentlemen, when you have your gold scraps in the crucible, and have them pretty well covered with the borax, when you throw your pieces of cadmium in, take the precaution of holding a cover in your left hand, and as you drop the cadmium in bring the cover in front of your face, as very likely particles of gold will be thrown out, and possibly burn your eye.

If I have any solder to make, I use four or five small pieces of cadmium, and I have just recently discovered that just at the melting point, if you have quite a large bunch of scrap, if any cadmium is thrown in, it floats upon the surface, and then with a little extra heat applied, it all fuses down, so that you have a more homogeneous mass than if all the cadmium were thrown in at one time, nor do you have any throwing off of the melted metal.

I have mixed up all kinds of stuff, adding cadmium to it, and I find that cadmium seems to make a most tractable compound. Gold that has been rendered practically unworkable with tin or arsenic and lead, comes out, after cadmium has been added, in fairly workable condition; if you have a reasonably fair quality of gold, you will have a solder that will make a good, stable piece of work.

There are so many things that come up in a most remarkable way in metallurgy. One thing that has been brought to my attention is the annealing point of platinum. We find that many will bring platinum to a pretty good red heat, and believe it is annealed; but practically nothing is done in the way of annealing until platinum is heated to a white incandescence, and until then you have softened it very little.

Concerning these crystalline foils, I have discovered just recently a thing that explained to me why, sometimes, the gold does not stick quite so well as it should. Most of these plastic forms of gold are crystalline, electro-deposited; they are used with a burnish to a considerable extent. In one of the scientific journals last month, I noticed that Dr. X., in an address given before the British Association for the Advancement of Science, took the ground that the old division of matter into solid, liquid and gaseous was misleading. Sir William Crooks has said that matter also might exist in the radiumits state. Dr. X., experimenting with gold, discovered the fact that, in polishing, the surface of gold would absolutely liquefy. Of course that liquid condition is only momentary, and when it solidifies it does not assume a crystalline form, but is rather in a vitreous, amorphous state. In making microscopic slides of very thin gold, that had been subjected to this polishing process, he found this polished surface to be a perfectly homogeneous substance, and just under that he found the crystalline gold broken off from the under side of the vitreous substance, and sticking to the main crystals beneath that had not been disturbed by the polishing process. That vitreous condition is not as adhesive as the crystalline condition. The gold is not as adhesive as though it had been annealed and allowed to return to its crystalline condition.

By annealing gold, we obliterate that vitreous condition, and it again assumes its crystalline form.

Dr. X., in elaborating his subject, claimed that there are other forms of matter besides the four mentioned, and that a fifth, and possibly a sixth or seventh form may exist. He thinks this change from the amorphous to the crystalline is entitled to the same consideration as the change from liquid to gaseous, and he goes on to demonstrate the fairly probable supposition that all matter is crystalline at some stage of temperature. You can take gold down to absolute zero and it loses all life—at that point the metal is absolutely dead. You can again take it up to a higher temperature, and it assumes its crystalline form; it becomes alive, and will repair an injury to itself the same as any other crystal will. Gold seems to be a vital substance. Between these two stages you find points of cohesion and of repulsion changing places.

This is a little theoretical and unsubstantial in some particulars, but it is along those lines that the young men, and the old ones, too, because they have more time and more money to devote to it, should study. They should try to find out combinations of metals that would enable us to make better dies; methods to secure greater cohesion in our foils, greater perfection and greater adaptability, and all the various forms in which metal could come that would so well fulfill our purpose if we only knew their physical characteristics.

It is along physical lines, I think, that the dentist, especially the metallurgist, should investigate.—*Western Dental Journal.*

BAKING PORCELAIN.

C. H. Land, Detroit.

A Voice—How do you support that Porcelain when in the furnace?

Dr. Land—I get a very thin piece of platinum and lay it on top of a fire-brick slab, and sometimes I get a little trough and lay it on that to keep it off the fire-brick and clean. If there is anything in this world you want to keep clean and keep dirt and flux away from, it is porcelain. I don't know anything so sensitive to dirt as porcelain. You must watch it closely and rest it on a clean surface. If you put it on dirt you will find a hole in it, and if you grind it you will get a piece of carborundum in it. I will tell you how to get rid of the carborundum. Never put a tooth, a vitrified piece of porcelain, back in the furnace after you have ground it, until you have washed it and fired it again, because if you do there will be a little bit of dirt, and you will have three or four nasty little bubbles on the front of the tooth. If you besmear a plate-glass window you cannot see through it, because light is refracted. A large amount of flux put in porcelain makes it opaque and not translucent. The less flux you have in a body the more translucent it will be. A true dental porcelain is a porcelain that will hold its form both before and after fusing; that is, I want a porcelain I can just mix with water and build up in my hand and then put it through the fire and not get it out of shape. I have been asked how long I leave my porcelain to cool. Probably a high-grade porcelain, unless it is quite a large molar, can be taken out and thrown all over the room, barring getting dirty, and would never crack. A low-grade will crack as soon as you take it out and cool it. I have made crowns out of pure silica under the oxy-hydrogen blowpipe, and heated them red-hot and thrown them in the water, and you cannot crack them. With porcelain, if you could reach the fusing point of silica, you could throw it in water. To devitrify most of our porcelains, we can throw them in water, but when the flux is all out and it is reduced to pure silica you can throw it in water and it does not break. All of our clays are silicates of aluminum, and the less flux there is in them the less liable they are to crack. If you want to be careful with the porcelain that is easy to fracture or crack, put it in the muffle on a comparatively thick piece of fire-brick. Take it out in the open air, leave it on the brick and let it cool, and it will never crack, because the brick is a non-conductor and holds the heat long enough to temper any ordinary piece. Do not lay it on anything that will absorb the heat from it. A substance generally throws away heat about as fast as it takes it. Different metals in different clays will do the same thing. They receive and give away about the same proportion. So all of our firebrick, fire-clays, are slow to give up heat, and with small pieces like that there is no danger whatever of cracking if you take them out immediately.—*Dominion Dental Journal.*

OBJECTION TO THE USE OF SULPHATE OF POTASSIUM.

J. H. Prothero, Chicago, Ill.

Sulphate of potassium should not be used in plaster that is used for models, for the reason that steam and water attack a model containing sulphate of potassium much more rapidly than if the plaster is mixed without potassium; therefore, we are trying to keep the plaster model hard as long as possible until the rubber has begun to carbonize.—*Dental Register.*

TO PREVENT RED AND PINK RUBBER MIXING.

N. S. Hoff, Ann Arbor, Mich.

To prevent the red rubber running through the pink after investing the plate in the wax form in the plaster, make your investment only to the border of the plate, and then, when you pack your pink rubber pack it where you want it and cover it over with red rubber, and the pink rubber will not run out.—*Dental Register.*

UPPER IMPRESSIONS.

R. C. Traynham

If it is found difficult to remove an impression for full superior denture, have the patient close the lips and blow with sufficient force to distend the cheeks, and the impression will drop down, no matter how tight it may have been.—*Practical Dental Journal.*

A METHOD OF TAKING IMPRESSIONS.

J. H. Prothero, Chicago, Ill.

When there are no teeth in the mouth a modeling compound impression can be secured which will give a more accurate representation of the mouth than plaster of paris will give. Take the impression in the ordinary way, using good modeling compound. Chill it all through. If you use cold water to chill it, wipe off the water and hold it over a small alcohol flame or Bunsen burner and warm the surface to 1-16 to 1-24 of an inch in depth until the surface is quite plastic and the body of the impression is stiff. Introduce it in the mouth and press it firmly to place and you will find in many cases it will be almost impossible to remove the impression the second time. The best qualities of modeling compound will not expand or contract to any appreciable extent. Remember, now, I am not advocating the use of compound for partial cases or where there are heavy undercuts in the ridge, but in cases where the impression can be taken away readily.

A word in regard to the use of sulphate of potassium. In the experiments conducted I found that about 5-10 of a gram of sulphate of potassium in 40 c. c. of water would require about 55 dr. plaster of paris to make and mix without throwing out any water, and the mass would be of medium consistency suitable for taking impression, and then if it was stirred enough to mix the water and plaster you would get the minimum amount of expansion.—*Dental Register.*

DIATORIC TEETH IN CROWN AND BRIDGE-WORK.

Walter Richards, Slatington.

Dr. Richards demonstrated the use of diatoric teeth in bridge-work, without the necessity of subjecting them to the flame. His method of making the attachments for the teeth was to burnish a piece of thin platinum into the opening in the tooth, as when preparing an ordinary matrix. This platinum matrix was then filled with moss fiber gold, over which solder was flowed. It was then used in the building of the bridge in the ordinary way, the teeth being cemented into place after the soldering of the entire bridge.—*Dental Cosmos.*

TO REPLACE A BROKEN FACING ON A BRIDGE IN THE MOUTH.

A. J. Sawyer, Manchester, N. H.

Cut or grind off the old pins even with the backing. Then with a drill the size of the platinum pins drill through the backing at the point of one of the original pins. With a cross-cut fissure bur drill the backing to the depth of the platinum pins, cut a slot to and including the other pin, and with a cone-shaped bur countersink the slot on the lingual side. Now select a suitable facing, the pins of which will pass into the slot. Remove the facing, and with a flat, wedge-shaped instrument pressed tightly between the pins and close to the porcelain, bend the ends of the pins together, and with a file flatten the pins slightly where the ends meet, so that a small piece of No. 18-k. solder can be laid upon them. Then lay the facing on a piece of asbestos, and with a mouth blowpipe gently heat up and solder the pins together, thus forming a staple, which, when the facing is in place, will enter the slot and extend into the countersunk portion. The latter is then filled with quick-setting amalgam and the repair is completed.—*Dental Cosmos.*

METHODS OF FILLING SMALL CAVITIES IN CHILDREN'S FRONT TEETH.

L. C. Taylor, Hartford, Conn.

The object of the clinic was to show the importance of filling very small cavities in the teeth of children as young as eight or ten years of age. Dr. Taylor used for this purpose cement and gold in combination; just sufficient amount of gold in finishing the filling to protect the cement and prevent it from dissolving out of the cavity. This operation is performed with the aid of heated instruments.—*Dental Cosmos.*

NICKEL-PLATED PARTS.

One of the best methods known for keeping bright the nickel work about the office is to wet a rag with a solution of hypo-sulphite of soda, and wipe the article with it, drying with a soft towel, and then rubbing it with a piece of chamois.—*Bulletin.*

SOCIETY

THE JAMESTOWN DENTAL CONVENTION, NORFOLK, VA., SEPT. 10-12, 1907.

Committee on Organization.

Burton Lee Thorpe, chairman, 305 North Grand avenue, St. Louis, Mo.
H. Wood Campbell, secretary, Suffolk, Va.
F. W. Stiff, treasurer, Richmond, Va.
R. H. Walker, Norfolk, Va.
Thos. P. Hinman, Atlanta, Ga.
J. E. Chace, Ocala, Fla.
Clarence J. Grieves, Baltimore, Md.

Officers.

Honorary president—J. Y. Crawford, Nashville, Tenn.
President—V. E. Turner, Raleigh, N. C.
First vice-president—B. Holly Smith, Baltimore, Md.
Secretary-general—George F. Keesee, Richmond, Va.
Treasurer—Mark F. Finley, Washington, D. C.
Chairman of the general clinic committee—Clarence J. Grieves, Park and Madison avenues, Baltimore, Md.
Chairman of the general membership committee—F. W. Stiff, Richmond, Va.

The essayists of the meeting are as follows: Prof. W. D. Miller, of Berlin, Germany, subject, "Demonstrations of Preparation Relating to the Wasting (so-called erosion) of the Teeth;" Dr. Chas. L. Alexander, Charlotte, N. C., subject, "Gold Inlays;" Dr. F. T. Van Woert, Brooklyn, N. Y., subject, "Is the Cemented Filling the Filling of the Future?" Dr. R. Ottolengui, New York, subject, "The Purposes and Accomplishments of Modern Orthodontia."

The clinics and exhibits at the Jamestown convention are to be its interesting features.

Manufacturers' Exhibit.

The committee on manufactures exhibit, Dr. John W. Manning, Norfolk, Va., will show the latest and best dental instruments, appliances, machinery, furniture and materials.

Orthodontia Exhibit.

Dr. Harry L. Kelsey, chairman, Baltimore, Md.

The committee on orthodontia exhibit expect to have displayed at the Jamestown dental convention the best and most complete collection obtainable in the country of models and appliances illustrating the treatment of the various classes of orthodontia cases. The committee also hopes to have exhibited rare and valuable collections illustrative of the progress of the science of orthodontia from its beginning down to the present day, thus adding an historical feature to the display. The rare and valuable collection of models of the American Society of Orthodontia has already been secured and several of the most prominent orthodontists of the country have promised to contribute. In addition to this, Dr. R. Ottolengui will read a paper before the general body on "The Purposes and Accomplishments of Modern Orthodontia," which will be a paper reviewing and comparing the best in all methods to date.

Surgical Clinic.

Dr. L. M. Cowardin, chairman, Richmond, Va.; Dr. J. Y. Crawford, Nashville, Tenn.; Dr. A. G. Fredericks, New Orleans, La.

Under this head a number of important surgical operations of the mouth, face and jaw will be performed. Among the well-known operators who have signified their intention to operate are: Drs. G. V. I. Brown, Milwaukee, Wis.; W. A. Bryan, Nashville, Tenn.; Wm. Perrin, Nicolson, Atlanta, Ga.; B. Holly Smith, Baltimore, Md.; V. P. Blair, St. Louis, Mo.; Frederick B. Moorehead, Chicago, Ill.; Randolph Winslow, Balto, Md.

Committee on Comparative Odontology.

Dr. Wm. Bebb, chairman, Los Angeles, Cal.; Dr. A. H. Thompson, secretary, Topeka, Kan.

In this exhibit there will be about two thousand specimens illustrating comparative odontology, together with a number of pathological specimens, showing the effects of rickets, actinomycosis, etc., upon the teeth and the bones of the face. The latter are probably the most interesting feature of the collection.

There will be specimens dissected to show the attachment and development, others displaying the skin, skull and teeth of the various animals, together with a number of extracted teeth of mammals. The invertebrates, fishes, reptiles and birds will be represented by their food-reducing organs. A number of human skulls will be displayed, together with a collection of pathological human teeth. The collecting, preparation and mounting of the specimens of Dr. Wm. Bebb, all of which has been done by the exhibitor, is a feature of the exhibit which will be of interest to many. The pathological specimens, which may possibly have some bearing upon human dental pathology, are the most interesting part of the collection to the average dental student, and in this respect the Bebb collection is unique in having a larger number of these than any other known of. The ones Dr. Bebb collected himself are certainly more authentic than any which might be obtained from a commercial collector. This collection was exhibited at the Portland dental congress and received the hearty praise of all those who saw it.

The U. S. Naval Dental Exhibit.

Dr. Richard Grady, chairman, Annapolis, Md.

The U. S. naval dental exhibit will include many hundreds of charts of the teeth of young men from 16 to 24 years of age from all parts of the country, showing at a glance, and far more impressively than printed words could ever do, teeth filled, crowned, treated, extracted, unerupted, irregular, etc., also the size of cavity on individual surfaces of teeth; also kind of filling, or crown or bridge.

The character of the work, if gold, is designated with gold paint, if amalgam, with aluminum paint. Much valuable information is to be found in memoranda of anything of special importance, malformation and malposition of teeth and jaws, mechanical injuries to teeth and jaws, polypus of pulp, pyorrhea, erosions, stains, reflex, pains, regulating appliances, painful and difficult eruption of third molars, etc. The records, showing where caries is localized, extend over a period of years, and it is hoped that some day this store of recorded dental knowledge will be tabulated and the results of observation and study brought before the profession as scientific questions for consideration and interpretation. While the charts are simple, official records of the peculiarities of the teeth and of the operations performed upon them, yet they have furnished reliable evidence in several cases of drowning, as the teeth maintained their features and peculiarities when other external signs were wanting in establishing personal identity. A summary of the relative frequency of dental caries after 16 years of age (and before in permanent teeth), with number of teeth present, fillings, crowns and bridges will also be exhibited.

Committee on Dental History.

Dr. Wm. H. Trueman, chairman, Philadelphia, Pa.; Dr. Chas. McManus, secretary, Hartford, Conn.

This exhibit will show a collection of photographs, early certificates and diplomas, portraits of distinguished practitioners, collections of ancient dental instruments, and specimens of dental prosthetic skill, porcelain work, etc.; a photograph of title pages of early American dental literature, books and journals, etc. The committee on history will also prepare a report on the contribution of pioneer southern dentists, dental colleges and societies of the southern states. This will be published in the proceedings.

For further information, address

H. W. CAMPBELL, Secy.,
Suffolk, Va.

INTERSTATE DENTAL FRATERNITY.

The board of governors of the Interstate Dental Fraternity will convene for the annual business meeting of the order in Minneapolis, Minn., Monday, July 29th, at the West hotel. The annual banquet will occur during the week, and due notice thereof will be sent to the members as soon as arrangements can be made and the exact date fixed. It is hoped that the fraternity will meet in large numbers on this occasion.

DR. R. M. SANGER, National Secretary,
East Orange, N. J.

VIRGINIA STATE DENTAL ASSOCIATION.

The Virginia State Dental Association will hold its annual meeting the 9th of September, 1907, at the Inside Inn, Jamestown exposition. There will only be a short session, as the activities of our members are being merged with those of the Jamestown dental convention. This will be strictly a business meeting. No committees will be appointed, and no work done other than certain important matters of business, which will be designated later in a circular letter to be issued to each member.

W. H. PEARSON,
Asst. Cor. Secy.

N. D. A. CLINIC.

I regret exceedingly to say that I have heard from very few of the state chairmen, therefore, it is not possible to give the program in detail.

The headquarters in Minneapolis will be the Plaza hotel. The clinics will be held in the Armory, one-half block from the hotel.

The clinic will be the largest the National has ever held. There will be sixty-five practical operations on Wednesday, July 31st, and the same number of operations on Thursday, August 1st.

About forty of these one hundred and thirty operations will be the making and placing of inlays. The remainder of the operations will be divided into gold, amalgam, tin, cement, and gold and tin fillings, the removal of calculus, the administration of local anesthetics, etc., etc.

There is every evidence at hand that there will be the usual large number of men holding table clinics. Until the various chairmen make their reports, I am unable to complete the program.

On Thursday, June 20th, the program will go to the printer. It will be impossible thereafter to place names on the program.

I am very thankful that there is to be another clinic at Jamestown in September. Had there not been such a meeting arranged it would have been impossible to have a place for all who desired to make clinics.

Dr. W. N. Murray, of Minneapolis, will have charge of the inlay section.

Dr. F. S. Yeager, of St. Paul, will have charge of the table clinics.

Dr. W. A. Grey, of St. Paul, will have charge of the surgical clinics, of which there will be a number.

All of these men will appoint their own corps of assistants.

Drs. Carlson, Cox, Wells, Wilson and myself will be in the clinic room, and we shall do everything possible to assist the operators.

After using considerable persuasion, Dr. J. B. Ridout, of St. Paul, has agreed to give a blowpipe demonstration. It is well worth making a trip from New York to Minneapolis to witness this clinic. I am able to unhesitatingly endorse the demonstration which Dr. Ridout will give, for I feel that it will be one of the most interesting and attractive of all the table clinics.

Dr. Bryan and Dr. Muller, of Switzerland, are journeying to the meeting with some things in the mechanical line which they feel are all important and of the greatest value for everybody to see.

These are simply special features.

I said there would be one hundred and thirty practical demonstrations in Minneapolis on the two days of the clinic. I speak in this way for the reason that the men belonging to the metal filling clubs in the northwest have requested to be allowed to fill any and all vacancies which might occur. This action on their part is not only most laudable, but it at once assures those who will attend the meeting of witnessing the largest operative clinic ever arranged for the consideration of the members of the N. D. A.

I return most sincere thanks to all who have been so willing to work and who have assisted Dr. Clack and myself to arrange the best clinic possible.

I also wish to return many thanks to the editors of the different dental journals for their assistance and co-operation. It was very kind of you, gentlemen.

My program at present contains the names of the following gentlemen, who will make operations:

Surgical Clinic.

W. H. G. Logan, Chicago, Ill.; L. F. Luckey, Birmingham, Ala.; W. H. DeFord, Des Moines, Ia.

Inlay Section.

R. H. Volland, Iowa City, Iowa; C. H. Farrand, LaCrosse, Wis.; E. H. Bimrose, Butte, Montana; C. M. Work, Ottumwa, Iowa; W. H. Cudworth, Milwaukee, Wis.; J. E. Meyers, Minneapolis, Minn.; W. C. Pike, Minneapolis, Minn:; T. W. Russell, Minneapolis, Minn.; A E. Peck, Minneapolis, Minn.; F. B. Kremer, Minneapolis, Minn.; J. O. Wells, Minneapolis, Minn.; W. N. Murray, Minneapolis, Minn.; W. J. Brownlee, Devil's Lake, N. D.; J. Q. Byram, Indianapolis, Ind.; L. C. Elkins, St. Augustine, Fla.; C. A. Sevier, Jackson, Tenn.; A. G. Fee, Superior, Wis.; E. R. Fisk, Spokane, Wash.; G. W. Schwartz, Chicago, Ill.; J. D. Park, Duluth, Minn.; A. A. Jennings, Milwaukee, Wis.; S. J. Pattison, Fargo, N. D.; P. B. McCullough, Philadelphia, Pa.; C. G. Von Suessmilck, Duluth, Minn.; A. T. Reeves, Selma, Ala.; C. H. Seeger, Manitowoc, Wis.

Other Operations.

H. J. Beemer, Newton, N. J.; J. J. Booth, Marion, Iowa; E. S. Brown, Edina, Mo.; F. Bernard, Kennett Square, Pa.; J. V. Conzett, Dubuque, Iowa; W. G. Crandall, Spencer, Iowa; Wm. Finn, Cedar Rapids, Ia.; J. W. S. Gallagher, Winona, Minn.; C. L. Gunn, Gadsden, Ala.; T. B. Hartzell, Minneapolis, Minn.; F. A. Hardgrove, Fond du Lac, Wis.; F. S. James, Winona, Minn.; W. O. Lovett, Brewton, Ala.; C. B. Miller, Cedar Falls, Ia.; W. H. K. Moyer, Little Falls, Minn.; S. G. McCallin, Chicago; C. H. Oakman, Detroit, Mich.; J. B. Pherrin, Central City, Ia.; F. S. Robinson, Chippewa Falls, Wis.; F. G. Richardson, Mason City, Iowa; J. W. Slingluff, Burlington, Iowa; Alice M. Steeves, Boston; J. F. Wallace, Canton, Mo.; P. H. Wright, Oxford, Miss.; O. C. Zieger, Owatonna, Minn.; G. N. Beemer, Mason City, Iowa; C. N. Booth, Cedar Rapids, Iowa; A. D. Black, Chicago, Ill.; T. F. Cooke, Burlington, Iowa; W. R. Clack, Clear Lake, Iowa; A. C. Fawcett, Rochester, Minn.; C. J. Grove, St. Paul, Minn.; L Greenbaum, Philadelphia, Pa.; G. S. Handy, Natchez, Miss.; P. H Jones, Clear Lake, Iowa; W. B. James, Tracy, Minn.; A. M. Lewis, Austin, Minn.; H. R. Mavis, Minneapolis, Minn.; G. D. Moyer, Montevideo, Minn.; F. N. Owens, St. Paul, Minn.; A. R. Owre, Minneapolis, Minn.; W. S. Pugh, Mobile, Ala.; W. J. Reynolds, Selma, Ala.; C. H. Robinson, Wabasha, Minn.; A. C. Searl, Owatonna, Minn.; F. G. Van Stratum, Hurley, Wis.; C. E. Woodbury, Council Bluffs, Ia.; T. J. Yerke, Owatonna, Minn.

The following gentlemen have signified their intention of holding

Table Clinics.

J. E. Argue, Red Lake Falls, Minn.; A. P. Burkhart, Buffalo, N. Y.; H. L. Cruttenden, Northfield, Minn.; J. C. Corcoran, St. Paul, Minn.; I. N. Carr, Durham, N. C.; C. H. Frink, Fernandina, Fla.; W. L. Fickes, Pittsburg, Pa.; G. F. Hauser, LaCrosse, Wis.; F. R. Houston, Green Bay, Wis.; C. W. Jones, St. Paul, Minn.; C. H. Land, Detroit, Mich.; Eugene Muller, Zurich, Switzerland; G. C. Marlow, Lancaster, Wis.; F. A. Peeso, Philadelphia, Pa.; J. W. Ritter, Charleston, Ill.; E. F. Summermeyer, Eau Claire, Wis.; S. S. Stowell, Pittsfield, Mass.; E. F. Tinker, Wheatland, Iowa; O. A. Weiss, Minneapolis, Minn.; L. C. Bryan, Basel, Switzerland; G. A. Bowers, Nassua, N. H.; W. S. Curtis, Montpelier, Vt.; J. P. Carlisle, Greenville, S. C.; F. E. Dodson, Grand Rapids, Mich.; W. N. Fine, Philadelphia, Pa.; E. A. Honey, Kalamazoo, Mich.; J. A. Hall, Collinsville, Ala.; G. F. Jernigan, New York, N. Y.; J. L. Kelly, St. Paul, Minn.; C. W. Lokey, Talladega, Ala.; W. H. MacNeil, Minneapolis, Minn.; C. P. Peterson, Mankato, Minn.; J. B. Ridout, St. Paul, Minn ; C. F. Rodolf, Muscoda, Wis.; A. C. Steuerwald, St. Angars, Iowa; A. J. Sawyer, Manchester, N. H.; M. L. Ward, Detroit, Mich.; J. D. Wise, West Point, Miss.

This constitutes the clinic up to date. But three chairmen have reported from their states. There will be many more names to add to this program when the rest of the reports reach me.

E. K. WEDELSTÁEDT,
Chairman Clinic Section,
New York Life Building,
St. Paul, Minn.

TRANSPORTATION RATES TO THE JAMESTOWN DENTAL CONVENTION.

The following rates to the exposition have been made by the transportation lines:

Season tickets, 80 per cent. of double one way.

Sixty-day ticket, one and one-third fare plus 25 cents.

Ten-day ticket, one and one-third fare plus $2.25.

These rates will probably be lessened, or, if not, there are likely to be special excursions from all parts of the country and Canada at low rates.

The following places of interest can be visited as side trips.

Jamestown Island, $1.00.

Yorktown, $1.00.

Williamsburg, $1.95.

Washington, $3.50.

Baltimore, $5.00.

New York, Old Dominion S. Ship Co., $13.00 round trip.

Philadelphia, rail, $9.00 round trip.

Richmond, $3.50 round trip.

Several watering places within few minutes' ride of Norfolk and exposition grounds.

For further information address Committee on Transportation, Jamestown Dental Convention.

J. LEWIS WALKER, Norfolk, Va.
A. ALLISON STORES, Norfolk, Va.
W. M. STURGIS, Norfolk, Va.

By H. WOOD CAMPBELL,
Sec'y Committee on Organization,
Suffolk, Va.

NOTICE TO OHIO DENTISTS.

All Ohio dentists to whom applications have been sent and who contemplate attending the Jamestown Dental Congress in September should send their membership fee of $5 to the state chairman as soon as convenient. The fee entitles the members to a bound copy of the proceedings.

Address L. P. BETHEL,
Columbus, O.
185 E. State St. Chairman Membership Committee for Ohio

NATIONAL ASSOCIATION OF DENTAL SALESMEN.

The second annual convention of the National Association of Dental Salesmen will take place at the Hotel Shenly, Pittsburg, Pa., July 8, 9, 10, 11, 1907. All reputable dental salesmen are cordially invited to be present.

JUDSON STACKHOUSE, Secy.
C. A. C. KELLY, Pres.

NORTHEASTERN DENTAL ASSOCIATION.

The thirteenth annual meeting of the Northeastern Dental Association will be held in the city of Portland, Me., Hotel Lafayette, October 16, 17, 18, 1907. Preparations are being made for a valuable and instructive meeting.

EDGAR O. KINSMAN, D. M. D., Secy.,
Cambridge, Mass.

AFTERMATH

Loss by Fire to building and fixtures in the office of Dr. H. M Yaple, of Mendon, Mich., May 14, was fully covered by insurance.

Half Holiday.—The dentists of Bellaire, O., have agreed to close their offices on Thursday afternoon and evening each week from June 1 to October 1, 1907.

The Oklahoma Dental College of Oklahoma City was incorporated with $150,000 capital stock. The incorporators are William L. Maupin, John E. Macon, Robert Maupin, Guy B. Ross and Thomas Pendleton.

Illinois State Dental Society.—The following officers were elected: President, W. H. Johnson, Peoria; vice-president, H. L. Whipple, Quincy; secretary, Arthur D. Black, Chicago; treasurer, C. P. Pruyn, Chicago.

North Dakota Dental Association.—The following officers were elected: President, G. A. Rawlings; vice-president, H. L. Starling; secretary, O. H. Sossaman; treasurer, S. Rowan.

Results of Examination by Mississippi Board.—Out of the forty-five men who were in attendance and who took the Mississippi state dental examination, thirty-nine were graded as having "passed"—a much larger proportion than usual.

Iowa State Dental Society.—The following officers were elected: President, Dr. C. E. Woodbury, Council Bluffs; vice-president, Dr. C. W. Bruner, Waterloo; secretary, Dr. T. F. Cooke, Burlington; treasurer, Dr. George W. Slingluff, Burlington, re-elected.

Arkansas Dental Association elected the following officers: President, P. A. Skeen, Texarkana; first vice-president, R. B. Sadler, Paris; second vice-president, J. M. Andrews, Harrison; secretary, L. K. Charles, Eureka Springs; treasurer, W. T. Rowland, Bentonville.

Alabama State Dental Society.—The following officers were elected: Dr. A. T. Reeves, of Selma, president; Dr. George W. Randall, of Blocton, and Dr. Lorenzo Luckie, of Birmingham, vice-presidents; E. W. Patton, of Selma, secretary; W. J. Reynolds, of Selma, treasurer.

Elected Honorary Members.—At the recent meeting of the Northern Ohio Dental Association, in Cleveland, Dr. C. N. Johnson, Chicago; Dr. Hart J. Goslee, Chicago; Dr. C. M. Wright, Cincinnati, and Dr. Thos. E. Weeks, of Minneapolis, Minn., were elected to honorary membership.

Eastern Indiana Dental Association.—The following officers were elected: President, Leonard Strange, Marion; vice-president, Charles Kniese, Cambridge City; secretary and treasurer, Edwin S. Hulley, Marion; N. W. Hiatt, executive committee, and F. R. Henshaw, supervisor of clinics.

West Virginia Dental Society.—The following officers were elected: President, Dr. H. H. Harrison, of Wheeling; first vice-president, Dr. C. H. Bartlett, of Parkersburg; second vice-president, Dr. J. E. Dowden, of Fairmont; secretary, Dr. F. L. Wright, of Wheeling; treasurer, Dr. D. C. Clark, of Blacksville.

Dental Association of Camaquey, Cuba.—This society has just been organized, with officers as follows: Dr. S. B. Harris, president; Dr. Baldomero Parrado, vice-president; Dr. Raul Masvidal, secretary; Dr. Jose J. Rodriguez, vice-secretary; Dr. Raul Ramos, treasurer; Dr. Bernabe J. Arteaga, vice-treasurer.

Mississippi State Dental Association elected the following officers: President, Dr. L. A. Smith, Port Gibson; first vice-president, J. E. Brunson, Meridian; second vice-president, C. F. Boger, Natchez; secretary, E. Douglas Hood, Tupelo; corresponding secretary, Dr. S. B. Price, Corinth; treasurer, C. C. Crowder, Kosciusko.

Reorganization Scheme for Nebraska.—The Nebraska State Dental Society, at its business meeting, effected a scheme of reorganization by which the state will be divided into eight sections, to be known as component societies of the state association. Two meetings annually will be held by each of the societies, and at one meeting delegates to the state convention will be elected.

Vermont State Dental Society.—The following were elected for the coming year: President, C. H. Kent, of Barre; first vice-president, Harry F. Hamilton, of Newport; second vice-president, Charles F. Meecham, of Bellows Falls; secretary, Thomas Mound, of Rutland; corresponding secretary, Grace L. Bosworth, of Rutland; treasurer, W. H. Munsell, of Wells River.

Dentist Convicted.—In the court of Salt Lake City, Utah, May 10, Dr. H. L. Stonecifer, of the Ogden Dental company, was convicted of practicing dentistry without a state certificate. The court fined him $60. This is the third time that Dr. Stonecifer has been tried on charges of this kind and the first time that conviction has been secured. He will appeal the case.

Nebraska State Dental Society.—The election of officers resulted as follows: Dr. M. E. Vance, of Lincoln, president; Dr. D. A. Finch Grand Island, vice-president; Dr. E. H. Bruening, Omaha, secretary; Dr. H. T. King, Fremont, treasurer. Executive council, three-year term: Dr. J. S. McCleery, Beatrice; Dr. J. H. Wallace, Omaha, and Dr. C. E. Brown, Emerson; two-year term: Dr. H. A. Shannon, Lincoln; one-year term: Dr. N. H. Morrison, Red Cloud.

Marriages.—Dr. R. R. Kingsley, Ithaca, N. Y., and Miss Mayme Brown, of Ithaca, June 5th. Dr. E. W. Johnson, of Larcopie, Mo., and Miss Jessie Bales, of Carthage, Mo., May 4th. Dr. A. L. Brillhart, Tecumseh, Neb., and Miss Evelyn Dale, Centerville, Ia., at Valparaiso, Ind., May 22nd. Dr. Jerome W. Egbert, of India, and Miss Matilda Cannon, of Chicago. Dr. Fred McLeod, of New York, and Miss Agnes Singleton, Watertown, N. Y., June 4th.

Robberies.—Dr. P. H. Derby, Springfield, Mass., $10 worth of gold. Dr. L. G. Noel and Dr. W. C. King, Nashville, Tenn., instruments and old gold fillings. Dr. G. H. Ingalls and Dr. Scott, Boulder Colo., $300 worth of gold and platinum. Dr. G. R. Warner, Grand Junction, Colo., gold bridges valued at $150. Dr. M. W. Warner, Parkersburg, Ia., $20 worth of gold. Drs. Hansom and Urban, Paxton, Ill., large quantity of gold.

Bridegroom Changed His Name.—Dr. Annie R. Copeland, of Baltimore, Md., was married June 3 to Abraham Erott. Dr. Copeland, who was graduated from the University of Maryland four years ago, has built up a practice, and for that reason did not want to change her name. Mr. Erott, who is a dental student, accordingly decided the best thing to do would be to have the name "Copeland" added to his, which was legally accomplished.

Dr. H. W. Arthur and Son Receive Degrees at the Same Time.—At the commencement of the Western University of Pennsylvania, Pittsburg, June 7th, a unique occurrence of conferring degrees upon a father and son at the same time took place. Dr. H. W. Arthur, who for 35 years has practiced dentistry in Pittsburg, was given the honorary degree of Doctor of Science, and his son, W. C. Arthur, was graduated from the collegiate department with the degree of Bachelor of Arts.

New Dental Law in Tennessee.—The Tennessee Dental law has been recently so amended as to require all applicants for registration to be graduates of reputable dental colleges, and they must also pass a written examination by the state board and give a practical demonstration of proficiency in operative and prosthetic dentistry. Examination fee, $10. The annual meeting of the board was held at Nashville, May 16, 1907. With the other important amendments made at the same time, the Tennessee Dental law is now on a par with other state dental laws.

Appointed Members of Dental Boards.—Dr. J. M. Glenn, of Jackson, and Dr. F. A. Shotwell, of Rogersville, appointed by Gov. Patterson of Tennessee. Acting Governor Pindall, of Arkansas, appointed members of the state dental board as follows: Doctors Charles Richardson, Fayetteville; C. C. Sims, Dardanelle; C. G. Farrow, Little Rock; Charles Burgstrasser, Eureka Springs, and A. T. McMillan, of Little Rock. The board of regents of New York appointed Dr. O. J. Gross of Schenectady and Frank S. Ross, of Rochester as dental examiners. G. F. Ambrose, of Eldorado, has been appointed a member of Kansas State Dental Board. Governor Beckham, of Kentucky reappointed Dr. J. Richard Wallace, of Louisville.

Deaths.—Dr. Louis P. Paul, of Jerseyville, Mo., April 20th, aged 39 years. Dr. L. H. Goodrich, of Springfield, Mass., May 3rd. of heart disease, aged 64 years. Dr. W. H. Hipple, of Allegheny, Pa., May 4th, aged 62 years. Dr. Wm. B. Hendel, of Muskegon, Mich., May 10, aged 60 years. Dr. R. C. Brewster, of Brooklyn, N. Y., May 18, aged 63 years. Dr. Frank W. Edmonds, of Cohocton, N. Y., May 18th, of tubercular disease, aged 25 years. Dr. Benjamin Sanders, of New York, May 25th, of heart failure, aged 75 years. Dr. E. B. Briggs, of Richmond Hill, N. Y., May 26th, aged 50 years. Dr. Walter F. Weeks, of Sayre, Pa., June 1st, of pneumonia, aged 33 years; Dr. John D. Soetzerich, of Pine Bluff, Ark., June 2, aged 45 years. Dr. E. E. Rust, of Monroe, Wis., June 4.

For Uniform Dental Laws.—A plan is being formed to unite the state dental associations of Washington, Oregon and California. President Cutler, of the Washington State Association, has appointed a committee to complete arrangements for the consolidation.

The idea of the new association is to combine and endeavor to promote uniform dental laws, and thus make certificates interchangeable between the three states.

At the meeting of the association in Seattle it was voted to hold the next meeting in Spokane. Officers of the society elected were: President, Dr. R. A. Munroe, Spokane; secretary, A. S. Oliver, Spokane; first vice-president, Dr. J. K. Appleby, Everett; second vice-president, Dr. Lizzie C. Stuart, Seattle; treasurer, Dr. S. I. Monk, Montesano.

Examination of Dentists Under the New Law.—There were eighteen applicants before the Tennessee State Board of Dental Examiners. This is the first examination held under the amended law regulating the practice of dentistry in Tennessee. Under the former laws of the state any person could apply for a license to practice dentistry in this state and was entitled to an examination. During the recent session of the legislature the law was so amended as to provide that only those holding certificates of graduation from some reputable dental school were eligible to an examination for state license. This amendment was passed at the earnest solicitation of the dentists of Tennessee for the purpose of raising the standard of their profession.

Dental Bill for Michigan.—In the revised measure, the clause of the McKay bill providing for an annual registration and license fee for all dentists in the state is omitted. It provides that the state examining board shall consist of five members to be appointed by the governor. Only graduates of reputable dental colleges are to be allowed to take the examination for permission to practice in this state, the board to be the judge of the fitness of the college. Graduates of the dental department of the University of Michigan and other schools of the same standard are not obliged to take the examination, but may be admitted to practice upon the payment of a fee of $10. A dentist, upon being admitted to practice, is compelled to file his certificate with the county clerk, who will be required to furnish the secretary of the state association with a list of all licensed practitioners.

Double-Service Teeth.—Mrs. August Kramer, a thrifty little German woman of sixty summers, who resides near Fort Atkinson, Wis., should make her way in the world, if true economy will win out. Twenty years ago Dr. A. P. Burrus, of Janesville, made a set of false teeth for her husband, consisting of upper and lower plates. For eighteen years these teeth served all purposes and would undoubtedly have lasted fifty years had not Mr. Kramer died two years ago. Just prior to placing the body in the casket Mrs. Kramer asked that her husband's false teeth be removed, as she would soon be obliged to purchase some. Her request was complied with, and Mrs. Kramer arrived in Janesville with the full set of plates. She called upon Dr. Burrus, informing him that she desired to have them remade to fit her, and the request was granted. When she left the dental office she said that she hoped that the teeth would make her feel thirty years younger, as she intended to soon again enter the matrimonial class.

What Hustle and Push Can Do.—Perhaps no better example of what hustle and push can do can be cited than the Sanitol company. Ten years ago the business was started with one product, an antiseptic mouth-wash, with one man in the company. The next year the company was organized on the co-operative plan and today comprises more than five thousand dentists and many druggists. The company now has a complete line of toilet articles, which are sold in all countries on the globe. The total output in 1897 was about five hundred packages. In 1906 the total was five and one-half million packages, and for 1907 promises to be close to nine million. Since its organization the company has paid stockholders in dividends $445,000, has erected a manufacturing plant comprising two and one-half acres of floor space, and in spite of this and the large amount of money put into the development of the business, the company had about $127,000 as a surplus in December, 1906. This year the company will spend $250,000 in advertising alone. Hustle and push guided by brains bring success.

Asks $5,000 for Lost Teeth.—Five thousand dollars is the price demanded of the state of Ohio by Lincoln Wrenn for being deprived of the use of a set of false teeth. He never had the teeth, but he has felt the need of them very sorely, and since the state locked him up because he signed another man's name to a check, and thus deprived him of the opportunity to provide himself with molars with which to assimilate the hard prison fare, he holds that he is entitled to payment. Here is his itemized bill of damages:

To loss of facial beauty	$1,000
To anguish of mind, due to ridicule	1,000
To loss of digestion, due to liquid diet	2,000
To physical suffering	980
Cost of needed teeth	20

Wrenn had just had his old teeth removed and was waiting for his gums to heal when he got into trouble with the state. Now, he says, it is doubtful if he ever can procure teeth that will restore a normal appearance to his face, and he insists that his digestion is permanently ruined.

Free Dental Service—German School Clinic Opened for Treatment of Children.—Consul E. T. Liefeld reports that on April 22 a municipal schulzahnklinik (school dental clinic) was opened in the German city of Freiburg, the operations of which he thus describes: The dentist at the head of this school clinic examines all the children in the city, both in their homes and in the public schools. A report on such examinations is sent to the parents, who are asked to send their children to the school dental clinic for free treatment. Those children having ten or more poor teeth are first treated, an exception being made in the higher classes where those with only slight defects are to be treated, so that they will leave the public schools with sound teeth. After these worst cases have been attended to, all other children with defective teeth are to be treated, the younger ones given preference. The treatment of the teeth includes extraction, filling, crowning, etc. There is no actual instruction in dental hygiene, but at the opening of the dental clinic the teachers explain its object and workings to the children. The "zahn karte" (tooth-report card) contains on the reverse side instructions as to the care of the teeth.

Suit of Dentist Against Accident Insurance Company Lost.—If a woman should spit in your eye, accidentally, and you would be deprived of your sight as a result, you could not collect accident insurance. That in effect was the ruling of the federal court of appeals in the suit of Dr. John B. Thompson against the Fidelity & Casualty company, of New York. Holding that Federal Judge Riner, at Denver, erred in defining the word "wound" in his charge to the jury in the case of John B. Thompson, a Denver dentist, against the Fidelity and Casualty company, of New York, Judge Van Deventer, in the Federal court of appeals, at St. Paul, reversed the decision awarding Thompson $1,000 damages for blood-poisoning in the eye, as a result of Mrs. Josephine Reed coughing pneumonia bacilli in his optic while the dentist was working upon her teeth. Judge Van Deventer holds the word "wound" in the accident policy meant an "abrasion of the skin." Dr. Thompson was a dentist in Denver. In 1901 he was putting a filling in a woman patient's tooth when she was seized with a violent fit of coughing. As a result some of the sputum from the woman's mouth lodged in one of the dentist's eyes. There were pneumococci germs in the sputum, the doctor lost the sight of one of his eyes and the other was impaired. In the lower court he recovered a verdict of $1,000 against the insurance company, which appealed.

Club with One Member Will Take a Thousand-Mile Walk Through France.—Dr. C. Kabell, Chicago, president and sole member of the Pedestrian Club of America, has perfected plans for a 1,000-mile jaunt of the club through France. It will start from New York on July 4 for Paris. Forty days will be the actual walking time. "I shall wear the club button," said Dr. Kabell, exhibiting a gold badge with a pair of crossed soles rampant in the center of a circle. "It is wonderful what an effect the button has on foreigners. When I introduce myself as the president of the club, I expect to secure the entree to many places. The Frenchmen like to entertain presidents of American clubs. Of course, I will not tell them that I am the only member." Dr. Kabell, who by profession is a dentist and walks to work each morning from his home in Rogers Park, eight miles distant, is an experienced globe trotter. He has walked through nearly every country in Europe. Last May he walked from Chicago to St. Louis. "Walking is a great pleasure," he said. "I see so many freaks when I come through Lincoln park at 5 o'clock each morning. These are not in the zoo; they are old women walking barefooted through the grass to get young, and fat men trotting along to get slim. They all look happy. I walk to be alone and not have to talk. A dentist has to talk all day to keep patients from thinking how much they are being hurt. Riding limits one, too. If I should take a train through France I could not cut across fields and see interesting things." Dr. Kabell will wear a specially made suit of loben, imported from Germany. This, he says, is the lightest cloth made, and turns the rain perfectly. He will carry a ten-pound knapsack. "There is only one annoyance about the trip," said the doctor. "I have to give in to the post card craze. I shall buy a bunch of cards at Paris, stamp them with my name, and mail one each day. That will save writing." The president of the Pedestrian club wears broad, heavy shoes and carries no firearms.

New Dental Law for Pennsylvania.—A much-needed change has been made in the constitution of the dental council, which now consists, not of three only, but of five members, three of whom are officers of the state government, as provided in the act, and two are dentists—namely, the president of the State Dental Society and the secretary of the Board of Dental Examiners, the dental profession being thus more fully and adequately represented than under the old law. A step towards reciprocity worthy of a liberal profession and a great commonwealth is a provision for the admission to practice, without examination, of the licensed practitioners of other states.

The clause providing that the dental council may license worthy and qualified applicants who have been in the actual, lawful practice of dentistry for not less than ten years, is doubtless designed for the relief of certain exceptional cases of hardship, arising under the operation of more restrictive regulations. As the phraseology of the clause is not quite as explicit as could be desired the authority thus vested in the dental council would appear to be subject to possible misinterpretation and abuse.

Under the new law, as under the old, the examinations held by the State Board of Dental Examiners are not star chamber proceedings. After the examinations are completed the questions are at once published, so that the profession can judge of their fairness and adequacy, and the examination papers of the candidates are held open for the inspection of the public for a period of five years; thus full proof of any unfairness in marking is at the command of the candidates, or of their representatives. This, and the reciprocity features of the Pennsylvania dental law should be made a part of the dental laws of all other states.

Another provision which can be commended to the consideration of representative dental organizations elsewhere is the constitution of a dental council as a supervisory and regulative power. The record of the past ten years has fully justified the existence of this body, and in Pennsylvania its organization is regarded as one of the most valuable provisions of the law.—Dental Brief.

Dentist's Suit is Settled.—The $21,000 suit of Dr. Robert Eugene Payne, a New York dentist, against Mrs. Pauline L. Taylor, of Worcester, for dental work which was marked for special trial in the superior court, will never be tried. The attorneys interested announce that the case has been settled out of court. The case has attracted widespread attention and it is said that both parties to the suit were anxious to escape further publicity in the matter. Therefore, Mrs. Taylor will not have to suffer a jury examining her teeth. According to Dr. Payne's marvelous bill of particulars filed in superior court, in the few days he worked upon Mrs. Taylor's teeth in the Waldorf Astoria last year he placed in them a small fortune in gold. When he presented his bill Mr. and Mrs. Taylor declared it exorbitant, and a suit resulted when they refused to pay the bill.

Benefits of Dental Societies.—Referring to Dental Societies in his address before the Vermont State Dental Society, President Mitchell said: "The more of these meetings a man can find time to attend, the better dentist he will be, for they broaden his views, inspire him to greater progress and activity, advance him to a higher plane of knowledge and efficiency, and encourage him in the employment of new and improved methods, which enable him to give better services to his fellow man. Hence our interest in our societies, for it is by and through them that the greatest advance has been made and anything that will improve them must reflect in an improvement of the dentists who attend them, and through them be a benefit to their patients. One of the crying needs of our societies at the present time would seem to be better organization, not so much in the societies themselves as an organization of the societies into district associations and the formation of a national association composed of representatives of the district and local societies. That this is an age of organization is so evident that to mention it seems superfluous, but while the dental dealers, the dental faculties, and the dental examiners are organized, the societies as such are not. We have our dental societies innumerable, each doing a good work for the profession, but the societies are not organized as societies and each one is as independent of the other as were the colleges before the formation of the association of dental faculties, and as a consequence none are doing the work for the advancement of the profession that they could if they were properly organized and all working together for the common good. The time has arrived when, if our societies are to do their best work, they should be organized along the lines which have been adopted recently and so successfully by the Illinois State Dental Society."

Northern Ohio Dental Association.—Officers were elected as follows: President, D. A. Allen, Toledo; vice-president, D. H. Ziegler, Cleveland; recording secretary, Burt Saunders, Elyria; corresponding secretary, F. M. Casto, Cleveland.

A Little Piece Onto the Dentists.—The following appeared as an editorial in a Quincy, Ill., newspaper at the time of the Illinois State Dental Society meeting there in May: The dentists, God bless 'em! —or otherwise, are with us in great thickness just at present. As the Irishman said of his heavy crop of potatoes, "They are thick in the hill and damned numerous." The dentists in Quincy, Ill., just now are blamed numerous. They are holding their state meeting here. A dentist is a great nuisance until you need him—and then your trouble begins. The average person looks upon a business session with a dentist with a feeling of dread. His work at the very best is more or less of a torture—to the other fellow.

Although work upon the teeth has been done for thousands of years, the dental profession is a new one. Not so very long ago barbers and blacksmiths used to extract teeth, and jewelers used to do what might be called dental jobs. The profession of dentistry is hardly more than fifty years old. Go beyond fifty years, and you will find almost nothing that is now used in the dental profession. Their practice and their appliances are new. We do not know of any other profession that has been developed more rapidly than the dental profession has, during the last fifty years. It has come to pass that a first-class dentist must be well up in the science of pathology. A fine dentist can often give the regular M. D. important information. An expert dentist can read the physical condition of his patient from the condition of his mouth.

After all is said and done, the average human being is made or unmade by what he does with his mouth. It is what he does with that that determines his position here and hereafter. It is what one says, what one drinks, and what and how much one eats, that make or unmake him here. Many a man's tongue is an unruly member and keeps him in hot water while he lives. Men injure themselves unspeakably by drinking and smoking, and men and women alike hurry themselves to the grave by overeating. Overeating is, in this country, almost a universal habit. It shortens the lives of nearly all Dentistry has come to be a great profession. An expert dentist will take a hideous face and make it a thing of beauty. And in the doing of this job the whole face is largely made over. The shape of the mouth is changed, the shape of the nose is affected and the expression of the eyes is affected. The arch of the mouth is changed, and the tone of the voice is changed. Orthodontia is the poetry of dentistry. The importance of the work can hardly be overestimated. It is a beautiful science. The science of dentistry will never go backward. It has made a distinct place for itself during the last fifty years, and as the years go by the science will be added to rather than detracted from. May the dentists live long and prosper. And may their brief stay in Quincy be pleasant to all of them!

Recent Patents of Interest to Dentists.—

851483—Moistening attachment for dental engines, George Bartlett, Lenapah, Ind. Ter.

851501—Toothbrush, Ernest L. Detrick, Cleveland, O.

851550—Toothbrush guard, John C. Nevius, Trenton, N. J.

851578—Artificial teeth, Walter O. West, New Orleans, La.

852159—Dental-tool handle, Joseph Bode, Philadelphia, Pa.

851735—Dental appliance, Chester M. Dowell, Elkhart, Ind.

852266—Artificial teeth, Ernest D. R. Garden, Tarrytown, N. Y.

852413—Removable dental bridgework, Ernest C. Bennett, New York, N. Y.

853031—Dental instrument, August B. Prentis, Marshfield, Ore.

853405—Tooth-powder retainer, Ernest R. Godward, Invercargill, New Zealand.

853549—Toothbrush and powder receptacle, John P. Hill, Baltimore, Md.

853372—Machine for making wooden toothpicks, John H. Nute Portland, Me.

853421—Dental chair, Frank Ritter, Rochester, N. Y.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Commencement.—Louisville College of Dentistry, May 6, 60 graduates; Kansas City Dental College, May 9, 15 graduates; St Louis Dental College, May 10, 37 graduates; Baltimore Medical College, May 21, 20 graduates.

Home-Made Plate.—A unique piece of home-made dentistry has been performed by a European mechanic in a certain railway workshop in Bengal. He was obliged to use false teeth, and some time ago, through an accident, injured the plate, and was consequently unable to wear his artificial molars. Urged thereto by the necessity of his case, he brought his ingenuity to bear on the situation. With a quantity of molten aluminum he moulded a new plate with teeth complete, and in a day or two was provided with an admirable substitute for the damaged ones. The difficult question of coloring was overcome by an application of white enamel.—Dental Record.

Improvement in the Army.—The Tribune says: "The report of the director-general of the army medical department for 1905, while it shows that there was a certain improvement in the health of the army during the year, is not greatly reassuring as regards the condition of those presenting themselves for enrollment. Over a third of those anxious to enter the army were rejected on a medical inspection, the largest number of rejections being due to defective development, under the height, weight, and chest measurements. A man cannot, of course, by taking thought add to his stature; neither can he reduce it, and it is rather curious to find that during the year there were no fewer than seventy-one rejections for being 'over height.' Defective vision, for which there were 2,226 rejections, is also in most cases probably beyond personal control, though a good deal can be done in childhood to correct minor defects. For the unhappy possessor of 'flat feet' nothing, we fear, can be done—not for him the military gait, the delirious delights of the charge, the silent eerie hours of sentry-go; he must e'en content himself with the undistinguished bearing of the humdrum civilian. But it is different with cases of loss or decay of many teeth, which caused the rejection of over 5,000 would-be soldiers in 1905. Proper care of the teeth in youth would have enabled most of the 5,000 to gratify their martial ambitions, and if generally practiced it would remove what amounts to a national reproach. Happily, the newer educational methods now being introduced provide for regular examination of the teeth of the children, and the war secretary of the future will probably not have to lament the annual loss of so much otherwise good fighting material from this apparently trifling cause."—Dental Record.

REGULAR CONTRIBUTIONS

THE CAUSES OF FAILURES AND SUCCESSES IN CROWN AND BRIDGE-WORK.*

By Hart J. Goslee, D. D. S., Chicago, Illinois.

The subject of failures and successes as applied to any pursuit in which we may engage, from a study of the philosophy of life down to and including the most simple products of human efforts, has always been a more or less hackneyed one. In the interests of progress, however, it is well that it has been, for since it is but "human to err," and largely by our failures that we learn, the subject in general, and in any application, is one which must necessarily be replete with possibilities of greater or less interest and benefit, and is one, therefore, which will perhaps never grow too old to afford such opportunity alike to the philosopher, the genius, the craftsman, or the tradesman.

It is generally recognized that universally successful achievements in any chosen direction, and particularly in the field of art and mechanics, are to be attained largely by the acquirement of special skill, and that such is purely the product of development. Hence, since the development of any art or craft must first pass through all of the experimental stages, and since these particular stages are usually fraught with failures, need the barometer of any one's pride or vanity drop perceptibly in acknowledging them; and am I also warranted in venturing to tread upon an already well-trodden path? I do not essay to do so, however, from the viewpoint of either philosopher or genius, but simply from that of the craftsman, and as applied in a practical way to our craft.

That we should meet with failures now and again is to be expected, and that we are usually honest enough with ourselves to acknowledge them is to our credit, but do we always study the cause, or causes, and do we endeavor to profit thereby? If we do, then an occasional failure only serves to stimulate us with a desire to avoid the possibility of a recurrence, and such a desire tends to develop the best that is in us, and thus, in turn, will we develop individually, and will dentistry advance. On the contrary, however, if we fail to observe and closely study the causes of our failures, we can never hope to overcome them, nor to aid others in avoiding the same pitfalls, and our mission, therefore, will be but to retard rather than to advance the progress of our chosen work.

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*Read before the Northern Ohio Dental Association, June, 1907.

The profession of dentistry is still young. Many of its now most prominent departments, or specialties, are largely the product of the past decade. These must pass through the experimental stages; skill must be acquired; better textbooks must be written, and empiricism must give place to method and system before we can hope to eliminate, or even to greatly reduce, the proportion of failures. The frequency with which they are encountered, however, can be materially diminished by an early recognition of the fact that in an art which requires so high an order of special and versatile skill as does dentistry we can only hope to acquire it, and the good, sound judgment which comes with it, by developing system and observing detail.

Perhaps nowhere in the entire scope of dentistry is this more essential than in the specialty of crown and bridge-work. This particular field of our art is just passing through the experimental stage, and our methods have heretofore been nothing if not empirical; hence failures were necessarily an inevitable consequence, and it is largely the purpose of this effort to attempt to classify them, to point out some of the most common instances, and to suggest the reasons, and perhaps remedies, therefor.

For the purpose of presenting a more or less systematic arrangement of the subject, I have chosen to classify failures in the following order: First, those due to what may be termed unnecessary causes; second, those due to errors of judgment, and third, those due to faulty technique.

UNNECESSARY FAILURES.

In considering the first phase of the subject, as thus classified, I want to begin by saying, with all of the emphasis at my command, that many failures are unnecessary ones, and that a large proportion of those encountered by many practitioners can be directly attributed to one or the other of two or three general causes, any one, or all of which might be eliminated by a display of more conscientious effort.

These constitute either a failure to appreciate the necessity for a close observation of, and attention to, details in our everyday work; a wanton recreancy in first acquiring knowledge, and at least ordinary skill before undertaking the execution of a class of work, the successful application of which demands both; or the absence of any higher ideals than an unscrupulously mercenary ambition.

Indifference to the importance of observing details is a very large factor in accounting for failures, for the reason that anyone who neglects to do so, or who does so in a desultory or perfunctory manner, cannot hope to develop method and system, and the development of these is as essential to the acquirement of skill as is oxygen to life.

While personal equation and natural aptitude have much to do with the ease and facility with which skill may be developed, yet, to a degree at least, it may be acquired by almost anyone who is willing to make such application as is necessary to first cultivate and then develop it.

That many are not willing to make this application, however, is evidenced by a prevailing tendency which to me seems pernicious, and which at best could only be expected to invite failures; I refer now to the common practice of relegating work of this character to dental machine shops, and maintain that it is pernicious for at least two reasons: First, because he who pursues such methods is usually indifferent or incompetent, else he would do it himself, or at least have it done in his office and under his direct supervision; and, second, because the laboratory man, not having seen the case, is equally indifferent, and knows even less, although he may be a more skilled artisan.

As an instance, a dental friend of mine recently had occasion to visit one of the several large laboratories which thrive in Chicago, and while there chanced to engage in conversation with a young lady, who proved to be the assistant of a more or less prominent practitioner. During the course of the few remarks exchanged, it developed that her mission was to have a band for a crown, made in circular form and soldered, and that it was her fourth trip from a distance of three blocks for this purpose, the band failing to fit after the three previous attempts.

Whether the occasion for this incident was due to a lack of facilities or to incompetency on the part of the practitioner is immaterial, for in either event, to undertake to do that for which you have no facilities, or for which your time is too valuable, or concerning which your knowledge is too limited is presumptuous and dishonest; is a flagrant injustice to the patient and a menace to the progress and advancement of the profession.

I am too optimistic to feel that such practices are common, and yet too observing to fail to note that they, or similar ones are more so than they should be. Hence, until we can subdue such avariciousness, take ample time for our work, and confine our efforts to lines with which we are familiar, and in which we have been willing and able to acquire ordinary skill, we cannot hope to avoid what must therefore be characterized as unnecessary failures, or to achieve universally successful results.

Whilst I do not maintain that we can all become equally skilful, or that in order to avoid such failures each and every one must necessarily do all of his own work, I do maintain that one should at least know how to do it, and that, as far as possible, the actual execution should be confined, more or less, to his general supervision. If this is not possible, then both the interest of the patient and the character of the work must otherwise become secondary considerations.

Although these expressions may sound like a plea for specializing, or for the recommendation of patients to the specialist, and while such is quite in accord with the tendency of the day, and is not to be deplored, still the motive is rather to encourage the acquirement of skill, and to lay special emphasis on the assertion that in a class of work most of which must be done in the mouth and all of which is to subsequently become an important part of the human economy, no one is justified in assuming to do that which he himself is incapable of doing.

Another practice which is common, and yet one which can only be classed as a failure, from this viewpoint, is that of applying artificial crowns to teeth which might otherwise be restored and more or less permanently preserved.

Whether such a practice is to be attributed solely to gross avariciousness or flagrant dishonesty, or not, is, in a way, immaterial, but it is a common practice, and, in my opinion, it is inexcusable, and therefore a failure, for the reason that in these days of modern methods an artificial crown should be applied only as a last resort, and never because of the fact that its application would possibly entail the expenditure of less effort and energy on the part of the operator than would be demanded in the insertion of a filling.

While a well-made and properly adapted artificial crown has probably long been regarded as being the most permanent operation in dentistry, still it is also a fact that its presence does disturb the normal condition of the soft tissues surrounding the neck of the tooth supporting it, irrespective of how it may be made, or how perfectly it may be adapted.

For this reason, therefore, an artificial crown should never be inserted unless the preservation of the tooth by means of a filling is more or less impossible, or for the purpose of obtaining anchorage for bridge-work, or of correcting irregularities, or removing conspicuously discolored teeth, and when it is done for any other reason it must be regarded in the light of a failure, because of the fact that the tissues contiguous to the neck of a tooth remain more normal, and consequently more healthy, around a well-made filling, than they do around a well-made crown.

FAILURES RESULTING FROM ERRORS OF JUDGMENT.

Passing from this aspect of the subject, let us now consider that viewpoint which embraces such failures as result from errors of judgment.

In this connection, good judgment, like special skill, is an attribute which can only be acquired with experience. Yet so closely associated are the two that, while we cultivate one we develop the other. Therefore, in proportion as we direct our energies toward acquiring skill, will we be also enabled to exercise that judgment which is a prerequisite to success, in this or in any other field, the foundation of which is built upon mechanical principles.

Dynamics.—As applied to bridge-work, one of the chief causes for failures is the woeful display of ignorance concerning the fundamental principles of mechanics and the utter disregard of the laws of dynamics, which is so frequently evidenced.

As a result, fixed bridges are too often constructed for cases where a removable type of fixture is indicated; pieces which are entirely too extensive for the number and stability of the supporting teeth are inserted, and adequate strength to sustain the ravages of continued masticatory work frequently does not obtain, either in the form of attachment used or in the final assemblage of the parts, or both.

Fixed Bridges.—The tendency to place fixed bridge-work any and everywhere, irrespective of the type of attachment used, and of the number and stability of supporting teeth, is also entirely too common. This class of work is successful only in proportion as it may be inherently strong and judiciously applied, and because of the dynamic requirements, it will be found that "judicious application" will apply far more often to small pieces of from two to five or six teeth than to those in which a greater number are involved.

Large Fixtures.—In view of the numerous attachments for supporting removable fixtures which are practicable, and which may be used successfully, a larger proportion of the extensive cases should more frequently be made in this manner. If they were, fewer failures would be recorded; fewer good, sound teeth would be ruthlessly destroyed, and far more hygienic results would be obtained.

Saddle Bridges.—In order to insert fixed structures in cases where it is evident that the support is inadequate, an effort to more closely observe the dynamic requirements by increasing the resistance of the piece to stress is frequently made by using a "saddle".

While this type of construction may be successfully used under very favorable conditions, it often proves a failure, however, from a hygienic aspect, if not from a mechanical viewpoint.

But as both of these features are essential elements of success, they must be combined, and to be thus obtained they can only result from confining the application of a saddle to such cases as offer opportunity for a good, close adaptation to well-absorbed tissues, and for an adequate and more or less unyielding support at each end, and even then the application should be made mainly for the purpose of affording opportunity for restoration of lost tissue.

Extension Bridges.—Another common practice which often leads to failure is that of suspending one or more teeth beyond the abutment, or abutments, without sufficient support, or without some mechanical provision against leverage. Generally speaking, such a principle is mechanically wrong to begin with, and such cases can only be successful in proportion as the resistance of the supporting tooth is adequate to overcome the power of the lever, and to thus sustain all of the stress assumed by the suspended tooth, or teeth, in every direction.

Porcelain Bridgework.—The injudicious and indiscriminate use of porcelain in the construction particularly of "fixed" bridge-work is also the cause of many failures. In this connection it must be remembered that porcelain is a friable material, and hence cannot be relied upon as offering sufficient resistance to the more or less powerful stress of mastication unless it may be of such bulk as to possess inherent strength, and then so supported and protected by the metal substructure as to insure its integrity. And, again, granting that the application may be judiciously made, and the metal substructure physically adequate, failures often result from overfusing the body or from using a surplus of pure gold as a solder.

Removable Bridges.—While fewer "fixed" bridges and more "removable" ones would insure a greater proportion of successes than is now generally obtained, yet failures even in this type of construction are by no means rare.

These are due largely to a failure to obtain adequate strength in the attachment used to support the structure, and this in turn is due mainly to the use of such attachments as are manufactured for this purpose, many forms of which are built more upon the lines of beauty and delicacy than upon those of inherent strength.

When adequate strength in the attachment does obtain, however, many failures occur as a result of injury to the remaining natural teeth, and such injuries are usually due to an unnecessary contact between the structure and the necks of such teeth, which results, first, in mechanical abrasion, and, second, in subsequent loosening.

FAILURES RESULTING FROM FAULTY TECHNIQUE.

Having thus directed your attention to some of the causes of failures from the viewpoints mentioned, let me now pass to a consideration of that class which occur almost every day and which are to be ascribed to faulty technique.

Mechanical Irritation.—Perhaps the most common and flagrant evidence of failure is to be found in the inflammatory condition of the tissues surrounding the necks of roots supporting artificial crowns, which is so frequently observed. Indeed, even at the present time, it is surprising how very few cases we see which do not show such evidences to a greater or less extent.

Is this condition to be attributed to a chemical or a physiological incompatibility between the crown and its supporting root? Possibly to the former in rare instances, but certainly to the latter in most cases, and artificial crowns are physiologically incompatible, mainly, if not only, because of the mechanical irritation which they offer.

This disturbing element, however, arises from a single source—faulty adaptation—and this can in turn be attributed to a single cause—faulty technique, either in root preparation or in the adjustment of the crown.

Therefore, it does not matter so much what type of crown is used; if there is no chemical incompatibility, physiological disturbances can be overcome by avoiding irritation, and the possibility of irritation can be avoided by proper adaptation.

Thus, the somewhat mooted question as to whether a band encompassing the end of the root and passing within the free margin of the gum is the cause of the trouble, or not, or whether one should or should not be used, is not the vital issue, for the cause can only be removed by obtaining an adaptation which precludes it.

This brings us to a consideration of the combined therapeutic and mechanical requirements incident to the preparation of roots, and to conclude that they are often not properly observed, for if they were, fewer failures of this type would be noted and greater comfort and longevity would result.

Articulation and Occlusion.—Faulty articulation and occlusion is probably the next most common cause of failures in this class of work, and one which can only be attributed to indifference on the part of the operator, because the requirements are definite and positive.

In this connection, if fewer modeling compound impressions were used, and better models obtained, and if our work were constructed on articulators, such as afford a lateral movement, and the adjustment in the mouth then more carefully observed before dismissing the patient, greater usefulness and a much smaller proportion of failures in the form of fractured facings and broken or loosened fixtures would result.

The proportion of these and of all of the various other forms of failures which can be attributed to faulty technique could be greatly reduced if we would but take more interest, exercise more care, and spend more time in observing details.

Economy of Time.—The intuitive tendency, and even eagerness, which is manifested by so many to economize time by "cutting corners" and using so-called "time-saving" methods is largely responsible for the failures which are to be attributed to this common cause, for the reason that the advantages gained are usually doubtful, and often fallacious.

Any effort to save time is laudable, and to be commended—providing it is consistent and conscientious; and the adoption of methods and "systems" which will aid in accomplishing such an object is always warrantable—providing they prove to be practicable; but we must never lose sight of the fact that "short cuts" are often a dangerous experiment, and that to gain time at the possible expense of results is false economy.

The causes of success.—To be successful, what shall we do? Mainly this: Acquire skill; cultivate system; be conscientitiously painstaking and scrupulously observant of details. Ascertain the causes of failures and endeavor to avoid them. Take sufficient time first to plan and then to outline how the work can best be done, and then do it properly, and undertake nothing until you are first familiar with it.

In proportion as these fundamental requirements of success may be observed will the percentage of failures be reduced, will our work improve, and will this phase of dentistry advance beyond the pale of empirical laboratory mechanics.

92 State street.

A NEW REMEDY FOR PYORRHOEA ALVEOLARIS.*

W. H. Whitslar, M. D., D. D. S., Cleveland, Ohio.

Pyorrhoea alveolaris, next to dental caries, is the most destructive of all dental diseases. Its ravages may be observed in the skulls of the ancient Egyptians. Dr. W. J. Younger examined these remains and found that pyorrhoea alveolaris existed thousands of years before Christ. He also examined the mouths of living subjects and found the disease almost universal among the Egyptians, at least among the poor whose food was not clean. This was emphasized by the abrasion of their teeth, due for the most part to the sand in their foods, which are mostly vegetables. This food not being washed well, the particles of sand assist in the abrasion of the teeth in grinding the food similar to that observed in tobacco-chewers in this country. One of the most destructive cases of pyorrhoea alveolaris in my practice was due largely, in my opinion, to chewing tobacco. The particles of tobacco, with the sand contained in it forced into the gingivae and the interstices of the teeth, acted as constant irritants, which promoted the disease.

Now, it is not the object of this paper to enter into a discussion of the etiology and pathology of pyorrhoea alveolaris, but I desire to give the words of Bourdet, who wrote in 1757, concerning this disease, simply to indicate that the disease was well known at that time and that the phenomena are the same today. We, however, are able to discern more clearly the significance of these phenomena. Bourdet says: "The alveoli are susceptible to caries like the teeth, but more rarely. The ordinary causes of this disease are a scorbutic or venereal vice; deposits produced ordinarily by a damaged tooth, the vicious matter of which has remained for a long time in the region. The alveoli may likewise become the seat of destructive or consumptive processes, just as the roots of the first teeth or milk teeth. This is what may be observed when the roots become exposed during suppuration of the gums. This disease is very common. It is ordinarily caused by engorgement of the gums, where the blood is decomposed by stagnation; by an acrid and corrosive lymph, which, soaking those parts, gradually undermines them; by the mere presence of tartar, or by the effect of an acrid and corrosive secretion, which penetrates into the gums and up to the root of the tooth. These different causes bring about destruction according to the quality of the alveolus and the disposition of the subject. The alveoli and the intermediate septa which occupy the intervals between the roots undergo softening also at times, and become of a fleshy consistence. This is caused by the stagnation of the blood or of the serous lymph which infiltrates the gums. The abundance of these fluids remaining in the alveoli or in the surrounding parts very frequently produces this effect, and this is what causes the tooth to lose its supporting tissue."

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*Read before the Northern Ohio Dental Association, June, 1907

These are the words of an observer one hundred and fifty years ago. How wise he was, for, reading we learn that pyorrhoea alveolaris, according to Bourdet, may be produced by local or systemic causes, but that evidently the local causes are predominant. This opinion prevails largely today, and from the writings of those who are engaged in the treatment of the disease, it seems that more stress is given to local conditions and causes rather than systemic disturbances. Pyorrhoea alveolaris is a term given to cover the whole gamut of the disease, as ordinarily understood, but when this title is applied to that phase of the disease wherein there are no deposits upon the teeth and no flow of pus, then it is a misnomer. As stated before, it is not to discuss pathology herein, but to present a remedy for the flow of pus from the alveolus, and for that purpose I desire to present the merits of sulpho-carbolate of zinc as a medicament of great efficiency. It is obtained by heating a mixture of carbolic acid and sulphuric acid and saturating the product with oxide of zinc, then evaporating and crystallizing. Sulpho-carbolate of zinc is found readily in the drug stores and consists of colorless, transparent and efflorescent crystals, which are soluble in about twice their weight of water. From the ingredients of this material it is readily observed that it offers a compound that should prove valuable in the treatment of pyorrhoea alveolaris in nearly all of its phases. The U. S. Dispensatory says that sulphocarbolate of zinc is an antiseptic, astringent, and stimulant to indolent or foul ulcers, and in subacute inflammations of the mucous membrane. Practical experience has proven to me that this remedy acts as an astringent, contracting the gums and the tissues about a loosened tooth more rapidly than any other means employed. It is, therefore, useful when the gingivae are swollen, as for instance, after the setting of crowns or the adjustment of bands in orthodontia. It is useful in fistulous tracts, but should not be forced into tissues with no outlet. I have never observed any detrimental effect upon any of the tissues of the mouth. Being refrigerant, sulphocarbolate of zinc may cause some complaint because of its coldness, but warming the solution will modify this difficulty.

In the treatment of pyorrhoea, my treatment is usually a ten per cent. solution in water. The solution is colored with Tincture of Cudbear. Give the patient a bottle of this to massage the gums between treatments. Inject the solution into the pocket with a good syringe having a long slender needle that will reach the bottom of any pocket. The Sub-Q syringe, with a gold needle, is very good. Carry the point as deeply as possible and flood the pocket and use force enough to carry the fluid to all parts, then quickly massage the gums. Care should be given not to force the solution too hard into the pockets, as that will cause pain, no matter what might be used. After the injection flood the mouth with warm water from the water syringe. Of course, this treatment follows the removal of deposits from the roots of teeth and necrosed bone, if any. This treatment should begin at the first sitting, even though all deposits are not removed, since it may require a number of sittings to accomplish the surgical treatment. Subsequent sittings enable one to discover the location of remaining deposits by the deep or injected color of the gingivae. From one to a half dozen treatments will stop the flow of pus in many cases. My observation is that there is no return of pyorrhea in the majority of cases. I may have been fortunate in having good cases, but in one test case, which was not seen for a full year after the sulphocarbolate of zinc treatment, there was but one tooth in almost an entire mouthful of affected teeth that became affected again. Another case referred to me by a neurologist, in which the tongue had a peculiar sensitiveness upon its side, was also a severe case of pyorrhoea. Within a month the pyorrhoea disappeared as well as the aforesaid disturbance, and neither has recurred. This is a case of over a year's standing, but prophylactic treatment is continued monthly in this case.

The first case in which this remedy was used was a small abscess upon the root of an upper incisor. The swelling was about the size of a pea. One injection of the sulphocarbolate of zinc was given, and the following day the gum was flat and the condition so near normal that it was indeed surprising.

These cases have been mentioned to show the unusual efficiency of sulphocarbolate of zinc. However, it must be stated that all treatment of pyorrhoea alveolaris must be preceded by surgical methods, i. e., removal of deposits upon the teeth, necrosed bone, or resorbed roots, having the apex reduced to a needle-like sharpness removed. We must also remember that all cases are not curable.

In conclusion, let me say that having used this remedy for more than a year, it is found to be giving good results, and is growing in favor among some of my professional friends who have tried it.

REMINISCENCES OF DENTAL PRACTICE FIFTY YEARS AGO.*

By C. R. Butler, M. D., D. D. S., Cleveland, Ohio.

I think it is a common saying that if you want to know or study a subject, it would be necessary to write a book on the same.

And in taking a retrospect so many things come trooping up that it is difficult to sort out the items of special interest for this occasion, and not make the book too large**

Fifty years ago there were hardly a dozen dentists in the town of Cleveland.

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*Read before the Northern Ohio Dental Association, June, 1907

**The members will observe that the writer will use mostly the nomenclature that was in vogue at the time we are considering.

Up to 1855, the only cure for an aching tooth was extraction. "Have it pulled" was the verdict, and 25 cents was the charge, or no charge at all.

And if he was to have the job of making an artificial piece or set for the victim, the preparation of the mouth for the artificial teeth was thrown in.

Any attempt to save an exposed nerve case, by capping or destroying the nerve and charging any remunerative fee for filling, was considered a piece of piracy.

One dollar for gold filling and 50 cents for tin or amalgam was the standard price with the ordinary dentist; many efforts were made to advance the rates as a whole.

There was no free communication or fellowship among the few that were in practice here; "closed door" was the order of the day here and elsewhere.

In 1856, as a student, the writer was fortunate in finding a few doors slightly ajar; and being cautioned not to divulge what was seen and heard, many valuable items were gathered in exchange for little tricks of genius in the production of instruments that nearly all were sorely in need of in operative dentistry.

Cohesive gold was being talked about, and serrated pluggers were not to be had; at first a single cut styled pig-foot point was made.

Dentists of today should not forget one all-important fact: that the finely-finished instruments, having the quality of uniform adaptation, were the creation of a few dentists instead of the manufacturer; they have been duplicating. Dental engines were hardly dreamed of, and yet for quite a period Cleveland could boast of having a number of skilled dentists and adjacent thereto were men that have not yet been excelled in all-around dentistry.

There were no specialists in those days.

Entire porcelain dentures were developed in this territory about 1859, and were popular for a time; then vulcanite came in, and still holds sway. There are not as many skilled plateworkers today in proportion to the number in dental practice as there were 40 years ago.

And with bushels of porcelain teeth on the market now, there is no assortment of plate teeth for gold mounting to be had in Cleveland today.

Gold and coin silver plates were used for mounting artificial teeth, and the porcelain teeth in the market, plain or gum, were more like split beans than characteristic teeth.

And when a piece was presented for repair it was undertaken with much dread, for in putting on a tooth it often resulted in cracking several others in the heating up for soldering, and if an incisor was broken it was very difficult to secure a match in color or shape, so riveting was the procedure if possible.

Individual carving of teeth was a high art with some dentists. And a pioneer member of this association was the first to suggest to a manufacturer, in 1843, that teeth in sets be arranged on waxed cards, as we find them today.

Continuous-gum mounting in those days was a herculean task, with a furnace that would use from a bushel to two bushels of coke or hard coal for a firing, with hours of anxious watching, and was only attempted by the few.

Warped and misfitting plates was a subject for much discussion, and no end of perplexity to patient and dentist.

The writer can well remember the saying, that if an upper plate would stay in place when a patient said "yes" or "no" and not tumble down, it was considered a good fit.

Springs to keep full sets of artificial teeth in place were a common thing up to 1858.

One man used to say, "Make the piece, put it into the mouth, get the price for it into your pocket, and the fit will be all right."

That kind of logic and mechanics didn't always work; consequently an evolution came and brought better results.

The mode of swaging, the bulk of investment (sand and plaster) that was used at that time was enough to warp any plate when heated up for soldering. A small charcoal furnace, such as tinners use to heat their soldering iron, was used to heat up the piece; then the soldering was finished with the mouth blowpipe.

Home-made gold solder that wouldn't flow, often resulted in holes being burnt in the plate and lack of skill in using the blowpipe, which many still show with all the modern improvements and so-called "up-to-date" workers in gold mounting.

The cry a la newsboy for things and modes "up to date" is so obtrusive that it is hardly to be expected that facts pertaining to dentistry of the past will excite any particular interest at the present. And yet we are all indebted to the pioneers in dentistry.

Quack and dental-parlor dentistry had patrons in olden times here as well as now.

And the first dental parlor promoter was no dentist, but he was the most successful advertiser that ever foisted himself on the public with his hired workmen. However, like some other pest, he left the city between two days.

Cheap dentistry in plate-work was practiced here many years ago; in fact teeth were extracted, impressions taken, dies made, raw silver plates struck, teeth soldered with block tin (with solder-iron), all within the day. Literally, "artificial teeth made while you wait, $10 or $15 per set".

This was before the day of vulcanite.

An anesthetic was not recommended, and hardly thought of in those days. People seemed to have more courage and less appreciation of the value of natural teeth.

The silver plate and block-tin soldering was considered a good thing for lower pieces. It was the forerunner of the Weston-Watt cast-metal plates.

Occasionally an extra fine piece was made, using gold plate, block-tin soldering, then gold plating the whole as a final finish, especially for a full lower temporary set.

Something was being done in operative dentistry, though it was estimated that not more than one in a hundred could make saving fillings, especially with gold.

Laterally, the G. V. Black school, extension for prevention, have caught an idea that was set in motion many years ago Self-cleansing spaces for a time was strongly advocated, and practiced by some; now the Blackites come along and restore the liberally cut spaces with gold. And it's still an open question whether either mode is the best procedure in all cases.

Gold and porcelain inlays have not yet had the time test to warrant their universal adoption.

We will close this sketch with a few queries. How much real improvement has been made in dental practice in the half century past? That is the all-important question that should elicit our most earnest thought at this time.

Is it the function of the school to increase the numbe year by year to serve the people, with no familiarity with the odors of the dissecting room, fumes of the laboratory in compounding of medicaments, general and microscopic histology? or has this kind of training become unnecessary in order to handle the living subject with the skill of an Agnew, Sayere, Lorenz, Webber, and a Cushing?

Or, is it more commendable to be a skilled crown-and-bridge maker as the highest recommendation for place and patronage?

Is it not about time that we get outside of the realm of mechanics, if we would be accepted as physicians, and in earnest to do more in the work of preventing dental lesions?

Machine music may be grand, but if you want music that will thrill the soul and awaken the affections, a Parepa or Patti must be invoked. The great Architect of the universe has given us the human voice, that far excels in beauty and grandeur all mechanical devices.

Now, gentlemen, if I have succeeded in bringing a few scraps from the junk heap for your inspection, it has been done by the request of your executive committee for the fiftieth meeting of the Northern Ohio Dental Association.

TWO DAYS WITH THE "FATHER OF ORAL PROPHYLAXIS."

By Wm. H. Van Deman, D. D. S., D. D. Sc., Toledo, Ohio.

It was my privilege and good fortune to receive an invitation from Dr. D. D. Smith, of Philadelphia, to attend a clinic on prophylaxis, given at his office the 27th of December last. Having been especially interested in this line of work, and having had some good results from the treatment in my own practice, it was with great pleasure and anticipation that this invitation was accepted. Yes, much was anticipated, for much had been heard and read of the wonderful results of Dr. Smith's prophylaxis, but I am frank to say I was not prepared for what I saw.

Imagine being shown forty perfectly clean, healthy mouths, with teeth highly polished, and gum tissue in perfect health, from one man's practice! Could anyone who had not visited Dr. Smith be prepared for so much? Why, "the half has never been told" of this great man's splendid work.

There were twenty dentists from various parts of the country, guests of Dr. Smith, at this clinic, and they were unanimous in their acclamations of surprise and delight. We saw mouths in which, a few months prior, pyorrhea had been flourishing, in perfect health. Children carried through that period of rapid decay (from six to fourteen years of age), especially of the first permanent molars, without a single cavity, or with but a small fissure filling. And many cases of hyper-vascular gum tissues, and hyper-sensitive conditions of the necks of the teeth brought to the normal state by this treatment.

One of the noticeable features of this clinic was that these patients, while many of them were from the best families of Philadelphia, were willing and glad to show their mouths. They were so impressed with the importance and benefits of this treatment that they wanted to do all they could to stimulate the profession.

Need one say more, to convince even a doubtful mind of the importance, nay necessity, of oral prophylaxis? Would forty patients be willing to exhibit themselves in this way were there any question as to the results? No, there is no doubt of the efficiency of Dr. Smith's prophylaxis. No one, if he is conscientious, can say anything else.

Dr. Smith has done more than any man living along the line of preventive dentistry. He has worked this thing out for himself and has generously given all to his profession. He has been hammering away many years trying to show us the light, and we certainly have been slow to see it. He has sacrificed much and has thought only of the high stand the profession might take and of the great good to humanity.

Now it is up to the profession. Dr. Smith said: "This is my last clinic of this kind, gentlemen; I have made a hard fight before the profession for prophylaxis. Now I am done. The profession must either accept or reject this work." Let us hope the doctor will not live up to that statement.

I would that every dentist in the country could have the pleasure and inspiration of knowing, personally, this man and his marvelous work. Money could not buy what he so graciously gave and permitted me to see. I shall always look upon those two days as among the most profitable and pleasant of my life. Would that it were in my power to give in words one-half the inspiration I received! We know there is nothing in the line of dentistry so important, and nothing which will give our patients and ourselves such satisfaction, as a wholesome, healthy mouth. Let us, then, consider the practice of oral prophylaxis a duty to mankind!

THE DENTIST WHO GUARANTEES HIS WORK.

By Dr. T. J. Sugg, Aurora, Missouri.

In recent dental literature, considerable space has been devoted to dental ethics. Who will say that the profession does not need some training along this line, since so many communities have what is known as the guarantee dentist?

By a guarantee dentist, I have reference to any dentist who advertises that he guarantees his work. The following are a few examples:

Card No. 1. First-class work at reasonable prices. Work guaranteed.

Card No. 2. Dr. Blank, dentist. All work warranted.

Card No. 3. Professional services reasonable. Satisfaction guaranteed.

Card No. 4. Work strictly first-class and guaranteed. Gas administered for painless extractions.

Card No. 5. Work guaranteed for five years. Located in ——— eleven years.

Numerous other examples similar to those named, of which you are familiar, could be given. Suffice it to say that these are not the advertisements of "dental-parlor" men and traveling dentists, as some might suppose, but are the cards carried in the daily and weekly papers of various communities by dentists who are respected, most of them having a more or less remunerative practice.

This type of quackery does the profession an untold injury—a greater injury, I believe, than do the dental-parlor corporations.

I made an effort to get some statistics in regard to the number of guarantee dentists there were in a few counties of the state. The counties heard from report from two to five.

You can readily see what an influence in the matter of educating the people these dentists have. Some are inclined to think that these men have only an undesirable practice, and that a desirable clientage does not expect you to do a guarantee business. I have had some of the best citizens of our town and surrounding country to make this inquiry: "You guarantee your work, don't you, Doctor?" Who is responsible for this question being asked? The dentist who guarantees his work, of which you will find one or more in nearly every county, is responsible.

The dentist who guarantees his work is ignorant of what it means to be in a profession, or he is a dishonest person. He cares little for the profession, and less for the professional dentist. He labors in no way toward the upbuilding of the profession. He makes of dentistry a trade.

It seems to me that it is the duty of every professional dentist to aid in exterminating all forms of quackery, and especially to rid the profession of dentists who guarantee their work. What would be the proper procedure, I do not profess to know, but will make a few suggestions as follows: First: Discourage young men from entering the profession whom you know to have little education or culture. The prospective dental student should have other qualifications than mere mechanical skill.

Second: Judging from my limited experience and what I have read, I don't believe that dental colleges teach as much ethics as they should. The colleges can do a great deal toward making ethical dentists.

Third: In the small towns and country we have too few dental societies. We need district societies, and where it is possible, each county should have a society. A well-organized profession has a larger influence, and can make larger demands in the matter of any needed legislation.

Fourth: Inform your patients that it is only quacks who guarantee dental operations, and that it is strictly unprofessional for you to do so. An intelligent patient will be easily convinced that the word "guarantee" is used for no good purpose, and that the dentist who is advertising "work guaranteed" is a quack.

Fifth: The guarantee dentist should not be permitted to be a member of any dental society, and the profession should enter a protest against such men becoming members of state boards.

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PRESIDENT'S ADDRESS.*

By J. R. Owens, D. D. S., Cleveland, Ohio.

Fifty years ago the Northern Ohio Dental Association was organized for the welfare and advancement of our chosen profession. Its meetings have been courses of post-graduate work, in which teachers were pupils and pupils teachers. Forty-eight weeks, or nearly a year, has been given to this work. One meeting in 1861 was missed owing to the disturbing influence of the shock of civil war. These weeks were distributed during the fifty years in which dentistry has made the greatest advancement in the history of the world. In a country in which dental skill is recognized as pre-eminent the world over, and in the Western Reserve, the center, as we fondly believe, of the best things in this great and glorious country.

In these years cohesive gold came into use. The rubber dam became our servant. Vulcanite made prosthetic work for the poor a possibility. Porcelain teeth were perfected until they deceive the most observing, inlays of porcelain and gold devised, teeth regulated, colleges established in the large cities throughout the land, our nomenclature changed and given method and system; in fact, a trade has become a profession.

How is advancement made? By bringing together personal experience, correlating facts, testing and proving statements and placing them in order with known facts. This constitutes science, which is nothing more than truth put in order. So truth is the thing sought in our quest after knowledge, and nothing but the truth will stand the test of time, because truth is eternal. The foundation of character must be truth. We must not only speak it, but act, and live, and work it.

A dentist, in discussing the treatment of pulpless teeth, said he could not take time to carefully clean out the pulp canals because his patients were not able to pay for it. I am sure he was not aware of the awful confession he was making. He professed to be a practicing dentist; had received a diploma from a respectable college stating his qualifications; the public believed him to be honest and capable and placed their teeth under his care; his duties are the care and preservation of the teeth and removal of offending teeth that are past redemption.

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*Read before the Northern Ohio Dental Association, June, 1907.

Now, insofar as he deceives his patients by doing less than the best he is capable of, he is not true to himself or the public. He is found wanting just to the extent of his deception, and there will be a growth downward if he does not reform. His character is bound to suffer. His reputation for skill will suffer, for, rest assured, his sin will find him out. He will never be able to have patients who will adequately pay him for his services, and it will be strange if in time his patients do not leave him altogether.

It is a serious matter to trifle with Truth. She is exacting. Neglect her and you suffer in this world and the next. Court her and she will be your handmaid and will reveal herself more and more fully, giving you power and liberty, happiness and peace.

To court truth is the most worthy occupation man can attain to. He is a fool who does not recognize this fact. All the woes and sorrows of the world are due to our ignorance of the truth. Surely so serious a matter is well worth our consideration, and though it may seem presumptuous, I will devote the rest of this paper to the consideration of what is Truth as it has been revealed to me. I presume some of my ideas may be crude, but they will be tested, and if found wanting will fall to the earth. Nothing but the truth is or can be saved. What is truth? This question has been asked many times before and after Pilate asked it of that One who stood before him in the praetorium, being judged by the world. What an answer He could have given! But He answered not a word. He speaks only to those who are sincere. To such He gives all they will take.

Truth is the law of conception, creation and preservation of the moral or spiritual, mental and physical universe. This seems quite comprehensive, but is scarcely a third of the definition. If there are laws of construction, then there are laws of destruction. If laws of construction and destruction, then laws of prevention. So the second definition of Truth is, the laws which destroy the conception, creation and preservation of all things in the spiritual, mental and physical universe. The third definition of Truth is, the laws which prevent the conception, creation and preservation of all things in the spiritual, mental and physical universe. Then there are laws that permit these facts of Truth to be joined together, so that

Truth takes the form of a sphere, and we speak of it being many-sided, and it is represented in the sculptor's art by a perfectly round ball.

The painter represents it in color, with blue, and the prophet writes of it as water and spirit, and as being one of the attributes of the Trinity of God.

We may wonder how these symbols of form, word and thought came about. I have given the reason for the sculptor's image. Let us see how the words water and spirit came to represent Truth.

In all nature we find matter has a trinity of existence. We call the different forms solids, fluids and gases. Water, one of the commonest and most necessary of nature's gifts, appears in ice, water and vapor. So the prophet has taken this for his imagery, and water represents the Truth. This explains the term "washing away sins," "being born of water," etc.

The liquids are called spirits in pharmacology, hence the Spirit of Truth. Then again, water to the eye is colored blue, hence blue in painting represents Truth.

The prophet speaks of the Eternal Father's laws being Truth—"Thy word is Truth." So "the Word" is another expression for Truth.

St. John begins his letter by saying: "In the beginning was the Word and the Word was with God, and the Word was God. The Word became flesh and dwelt among us, and we beheld Him as the only begotten Son of God, full of grace and truth." Then Jesus speaks of Himself as "I am the Truth."

But Truth is malign, supine and benign. Jesus represented the benign division and its highest or spiritual portion. Although He lived the Truth mentally and physically, His mentality has never been equaled, and I dare say what He did with his hands was well done.

We might say that Nero was one of the best examples of malign Truth, and the nobodies represent supine Truth.

However each individual exercises all of the laws of Truth, his life is a selection of the laws he shall live by, and this we call his character.

Our abode in the spiritual world and the intellectual world is as real as our abode in the physical world. We decide to live in benevolent land as truly as we have decided to live in Ohio.

We may live on the borderland or in the heart of the country. We may have abodes in all three of these countries of Truth and abide sometimes in one and then in another, and no matter where we live we are always selecting, rejecting or ignoring. The question then arises what to select, reject or ignore. If one should say, I will do nothing, he is unwittingly selecting the laws that shall rule over him. If he decides to live in benevolent land, he by so doing rejects malevolent land and indifferent land; so I repeat, we are constantly exercising the threefold spirit of Truth and living under its laws of conception, creation and preservation of those things we accept and the destruction and prevention of those things we do not approve. This constitutes the world we are really living in, and it colors what we see in the physical world. If we live in benevolent land the laws of conception, creation and preservation will be exercised to build up wholesome and helpful spirits, thoughts and things.

Where great aggregations of individuals with one spirit, ruled by the same laws, are brought together, great deeds and progress are accomplished. But when many spirits, governed by many and conflicting laws, are brought together, there is confusion and little constructive work is accomplished. A striking example of this kind is the Bible story of the Tower of Babel, which is but the tradition handed down in child-mind language of a people who were trying to build up a perfect civization, but with the following after many different ideals confusion resulted and the great opportunity, and a great ambition was destroyed.

It is but the sad story of the outcome of every great civilization. A group of individuals, ruled by laws of constructive growth, unite and build up a community of strength. As long as there is that unity of purpose governed by laws of benevolent construction there is growth. But when conflicting laws govern a portion of the mass and these become sufficient to create confusion, there is disintegration and death. So we have the stories of Egypt, Greece, Rome. So will be the history of whatever country that is not governed by the laws of benevolence.

Our own dear land, founded upon the principles of the Pilgrims and Puritans, gave a singleness of purpose, in the laws of equity and justice, of benevolence, that has builded a noble structure. But we have groups growing larger with the passing years who are governed by different laws. Will it lead to confusion? God forbid! But it behooves every citizen to consider where he lives, in the land of Benevolence, or Malevolence, or Indifference. In our building are we observing the laws that will make a safe and secure structure, or are the laws of destruction creeping into our work?

In the physical world every atom has a positive, neutral and negative zone. It is so with every aggregation of atoms; no matter how large the mass becomes, even to the extent of a planet. No atom is at rest until its positive zone is pointed in the same direction as the positive zone of every other atom. In other words, there is something outside of themselves that draws their positive zone to it. Until this is accomplished there is no harmony in the mass. Happiness is the spur to all human endeavor. We think that if we had a billion dollars we would be happy. If we owned the earth we would be happy. If we were lord of all the people we would be happy. If we were the first poet, historian or philosopher, or whatever is our chief ambition, if accomplished we would be happy. It is not in possessions, might or power that holds the secret of happiness, but a right relation of things. No atom is at rest until it has brought itself into right relation with every other atom. Neither is any multiple of atoms. Human beings are moral atoms. We are units and may will to remain separate from our fellows and gather around us as much of the physical and mental world as we possibly can, but we will never be happy (which is but another word for harmony) until we get to pointing to that greatest of all powers—Love. Love is the creating, sustaining, live-giving power of the universe. Until man gets his positive life pointed toward that life-giving Power he cannot rest, there can be no peace. All of his possessions or powers are abortive, will give no satisfaction; because man must live upward or he dies. He must be in harmony with his Creator—Love—or he is of all men most miserable. We recognize the necessity of harmony in music. We know there is no peace in the home without harmony. That does not mean that we must all have the same mind or occupation, but we must be animated by the same spirit, and that spirit must not be looking out for number one at the cost of the rest of the household.

Mr. Andrew Carnegie is a shining example of one who has gotten into harmony with the laws of Truth. He says he was never happier in his life, and his countenance is proof of the statement. He is living for his fellow-men.

In our humble occupation we may find that happiness and peace as surely as Mr. Carnegie. But there is only one way—one law—and that is the law of Love. We must live in Benevolent land.

PRESIDENT'S ADDRESS.*

By William H. Haines, D. D. S., Pittsburg, Pa.

It is not my intention to make an extensive report of the progress made by the dental profession during the last year, nor to predict its bright future, but rather to dwell upon the progress and future of the Odontological Society of Western Pennsylvania. First, I will ask, what constitutes a good society? How can we build it up and keep it steadily growing? We have no doubt observed that wherever flourishes a good, healthy, local society, there you will find the good, up-to-date and progressive dentist. The better and more active that society is the better and more progressive are its members. In March, 1906, there were 165 members of this society. In March, 1907, there are 178, making an increase of 13 members. Now, when we take into consideration that we have 295 dentists in Pittsburg and Allegheny, to say nothing of the neighboring towns, eastern Ohio, northern West Virginia, we can readily realize what a great field we have to draw from, and what great and good results could be accomplished by a hearty co-operation from the profession. I most thoroughly believe that the best way to accomplish this, and keep going onward and upward, is through the hearty co-operation of the smaller societies, fraternities, clubs, or social organizations of the profession, where we come in closer contact with the best interest of the practitioner. The more of these smaller organizations the better, for when all are bound together with the one object in view, that is, to love one another, help one another, help keep up our professional dignity, expand, and grow broad in our views. Then as professional men we can feel proud of our professional standing, and can truly say that we are satisfied with life. There is one thing sure, we cannot stand still, we must progress or we fall behind, and are soon lost sight of by those who are pushing to the front ranks of our profession. Therefore, we must mingle with our neighbors and bring in new ideas and give them something in return, and exchange ideas, for we cannot expect to get something for nothing. No man who wishes to advance in his chosen profession can expect to do so to the same advantage unless he keeps in touch with the progressive members of his profession, and this can be accomplished only by attending, and taking part in, the meetings of our local, state and national societies, also the international congress, when it is possible to do so.

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*Read before the Odontological Society of Western Pennsylvania, March, 1907.

The stepping stone of the real progress of our profession was made when and after the first dental society was organized, in New York, by Dr. Horace Hayden, i. e., the American Society of Dental Surgeons of New York. The question has often arisen, why is it so many of our patients go east when they have some very difficult operation to perform? Are we not progressive enough? Have we not the skill to perform these operations, or why is it? We can be progressive if we will, but it will require time, hard work and perseverance. We have the skill if we are willing to work and develop it, and when once developed it must be kept constantly supplied with new thoughts and ideas, and one great medium through which this supply can be kept constantly flowing is through our own local society. In order to keep this supply constantly flowing, I would suggest harmonious co-operation of the executive committees of the different organizations, with the executive committee of our own society.

There is still another important subject to which I wish to refer, and that is, the lack or neglect of proper exercise for the busy professional man, and more especially the dentist. This is, I think, a subject we should not overlook or treat too lightly, we should think more of our physical strength and endurance, and study what form of exercise or recreation would be the most beneficial to us professionally and individually, and select an exercise or recreation that we would enjoy most. If one starts in to exercise to be benefited thereby, with no other object in view but exercise he will derive but very little benefit from it; his energy and interest would soon die out. On the other hand, if one selects a recreation that he can enjoy, meet his friends and form new acquaintances, a recreation that affords and carries with it the element of competition, then the life of the exercise is assured, and the benefit desired will come, and one feels repaid for the time and money he has given to this form of exercise. If one is in the pink of condition physically, how much more pleasure he derives from his work, how much more work can be accomplished in the same space of time, and last but not least, how much better work we can do.

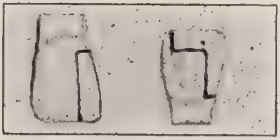
EXCHANGE OF PRACTICAL IDEAS

[This department being an exchange of practical ideas, it depends upon our readers furnishing material to keep it going. Just a few practical ideas from each subscribed will make it of mutual benefit and practical worth. Are you willing to do your share? Help the good cause along by sending the editor a few practical suggestions. Send something today. Address Dr. L. P. Bethel, 1255 Neil Ave., Columbus, Ohio].

PREPARATION OF PROXIMAL CAVITIES INVOLVING INCISAL ANGLES FOR PORCELAIN INLAYS.

By Tracy M. Payfair, D. D. S., Washington, D. C.

In presenting this method involving the incisal step, which in my hands has proven so satisfactory, I am advancing nothing new, only insofar, I believe, as it applies to porcelain inlays, for this manner of retention has long been the practice of many operators in the preparation of cavities for gold, and the same mechanical laws when applied to the retention of porcelain practically makes this filling indestructible, except in case of some unusual force exerted, resulting in either the fracture of the inlay or the tooth itself.



In the preparation of the cavity the same general laws which apply to cavity preparation for porcelain prevail: the margins must be square, smooth and well defined, avoiding all beveled edges; the labial wall should be formed at definite right angle with the axial wall, and where the labial wall is thin I have found that by backing it up with a thin layer of one of the porcelain cements, selecting a shade corresponding to the shade of the tooth, I avoided the clouded effect which invariably is present when any of the inlay cements are used.

The lingual wall should be cut away freely, giving as much bulk to the inlay as possible, of course being careful not to approach in too close proximity to the pulp.

The gingival wall should be at right angle with the labial, lingual and axial walls, with a square well-defined seat.

The step should be extended mesio-distally far enough to insure firm anchorage of the inlay, and where the incisal edge from the abrasion has been worn down so as to expose the dentine, the step should be carried across the tooth to the juncture of the dentine, and enamel, leaving the labial wall intact; it should be made as deep pulpally as safe; its width labio-lingually must be governed by the thickness of the tooth; the base of the step should be made flat, and at right angle to the labial wall.

Naturally, when completed, the inlay will be inserted from the lingual side of the tooth.

METHOD OF SOLDERING GOLD INLAYS.

By F. C. Runge, D. D. S., Houghton, Michigan.

In making inlays, whether solid or hollow, pack the matrix, after investing, with crystal gold, restoring contours to suit the case.

Be sure to pack fairly solid, as too mushy a pack will result in melting out. Previous to packing paint your matrix with flux, and then coat the whole with flux.

Use two sections of asbestos rings over a Bunsen burner, placing your inlay on a strip of iron wire on the top of first ring, and then placing second ring over this.

This leaves a miniature oven for your work.

When the case is red—observe from above—place your well-fluxed 22k. solder, or lower karat if you use it, a piece at a time, and have the satisfaction of seeing it soak into and through the mass without even the aid of a blowpipe.

I find it well to use the blowpipe to glaze the surface.

By this means I have found it possible to restore entire crowns almost, and am satisfied that I am giving my patients the best of it every time I save a tooth from a banded crown.

METHOD OF FITTING A LOGAN CROWN.

By P. E. Williams, D. D. S., Savannah, Ga.

Shape the root in the usual way. Grind the neck of the Logan crown to fit as near as you can. Then take a piece of carbon paper, punching the pin of the crown through it. Trim the paper to the size and shape of the neck of the crown, and place in position with the carbon side next to the crown, then press firmly. Remove the crown and take the piece of paper off; you will notice that all of the imperfect parts will be marked by the carbon on the crown. Trim off the marked spots, replace the carbon paper, and repeat as before, until you find the crown (neck) is marked alike all around; you will then have a perfect joint. Cement as usual.

A SATISFACTORY LOCAL ANESTHETIC.

By Robert Wakefield, D. D. S., Cranford, N. J.

The following formula has been used in my office, as a local anesthetic for the extraction of teeth and other operations within the oral cavity, for the last four years, and as yet we have to hear of any disagreeable results attending its use:

℞	Cocaine Hydrochloride,	Gr. xviii
	Strychnine Sulphate,	Gr. ¼
	Acid Boric,	Gr. xl
	Acid Carbolic,	M ii
	Aqua Distillate,	℥ iv
M	Sig. Inject from 10 to 15 minutes.	

The gum should be rendered as aseptic as possible before being injected, and the syringe when not in use should be kept in the following solution:

Lysol, 5%	2 parts
Phenol, 5%	2 parts
Saturated Sol of Sodium Bicarbonate	1 part

After standing in this solution, the syringe should be carefully rinsed out with hot water before using.

AN IDEAL CEMENT SLAB.

By Dr. F. J. Moyer, Jr., Lockport, N. Y.

I have found that the common flat-surface glass paperweight makes an ideal slab for cement mixing. They can be purchased for a low price and generally contain a souvenir photo of some historic scene. Being heavy, they will not slide around and are an ornament as well as a very useful adjunct to any operating table.

A NON-IRRITATING VULCANITE DENTURE.

By C. W. Myers, D. D. S., Montpelier, Ohio.

Some weeks ago a lady came to my office to consult me in regard to the condition of her mouth. She had for some years worn a red rubber plate. The mouth I found very highly inflamed, the entire surface covered by the plate being very red and angry looking. She informed me that her mouth was so painful at times she was obliged to keep the plate out for days at a time. I recommended a plate made of Traun's gold dust rubber. I made one for her. Some weeks later she called, after constantly wearing the plate, and upon examination of the mouth I found it in a perfectly healthy condition, all inflammation gone, healthy in color and free from pain. I find the rubber mentioned very agreeable to mouths and it makes an excellent plate.

COMPILATIONS

MISTAKES AND FAILURES IN BRIDGE-WORK AND SOME REMEDIES.*

By Frank E. Logan, D. D. S.

When reading the articles published in our dental journals, I have often thought that if some of the many eminent authors instead of elaborating their uninterrupted successes, would for a change relate a few of their failures they might prove as instructive in the end, and they would surely make many a poor and discouraged practitioner feel that he was not alone in his miserable failures. But it is universally the rule that we hear of nothing but an endless chain of successes, with no links of failures interposed here and there to weaken it.

There is no doubt in my mind that more than 90 per cent. of all failures originate in the faulty preparation of the teeth that are to serve as abutments. It is entirely unnecessary for me to enter into details regarding the manner a tooth should be treated that is to be utilized for the support of a bridge, for there is not a practitioner present who does not know when he has done the work conscientiously, and if he feels that he does not have the time or possess the required patience and ability to reduce it to the proper shape, he had better let bridge-work alone and insert plates.

It is absolutely essential that the crown should fit perfectly at the gingival margin; otherwise the work cannot be expected to be permanent. The care with which the abutments have been prepared, and I cannot emphasize too strongly the importance of using the utmost care and patience in this part of the work, has much to do with the success of the operation.

The preparation of the tooth for an abutment is one of the most important features in successful bridge-work, and nothing short of perfection will give us the results we hope to obtain.

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*Read before the Detroit Dental Society, March 14, 1907.

The tooth must be trimmed so that when the measurement is taken the circumference is greatest just below the gingival margin; considerable skill is required to accomplish this desired shape, more especially in the molar region, if the adjacent tooth is in place, for it makes the disto-lingual angle difficult to prepare on account of the limited space. However, with Leaming and diamond disks, kept wet by a spray of water, you can soon reduce the bulge of tooth substance so that the root's largest circumference is at the gum line. A tooth prepared in this manner is almost impervious to any external agency entering when the crown has been accurately adjusted, but should the preparation be done in a slovenly, haphazard manner, the crown fails to fit closely at the neck of the tooth, and as a result the cement will dissolve, decomposing food particles and other conditions favoring decay will lodge in the pocket previously filled by the cement, and very soon the entire tooth is destroyed by decay, sometimes without any warning to the patient.

Bridge-work will surely fail when placed on weak or unhealthy roots, or when the tissue surrounding the roots is diseased. There is absolutely no reason for using a root in such condition for an abutment, and such procedure is nothing short of criminal, for no matter how perfectly a bridge may have been constructed from the mechanical standpoint, from the practical you can expect nothing but a failure.

Nearly all diseased roots are affected by pyorrhoea. If the abscess is chronic and cannot be thoroughly eradicated by therapeutic treatment, surgical procedure should be resorted to and the apex of the root amputated, and should the root be necrosed, every particle of the necrotic tissue should be thoroughly removed and a radical cure produced; otherwise the diseased tooth should be extracted.

If the necrosed root be on one of the multi-rooted teeth, the sacrifice of the entire tooth is seldom necessary, for if this particular tooth is to form the posterior abutment for a bridge. and there is no tooth beyond it, and you resort to extraction, you have mutilated your case to such an extent that a fixed bridge cannot be inserted and have also made the conditions more difficult to remedy if you contemplate inserting a removable one.

Let us suppose the bicuspid teeth and the second and third molars on one side of the superior maxillary have been extracted, but the first molar is still in position, with the palatine root badly necrosed, and owing to the pus organisms suppuration has completely destroyed the vitality of the pericementum, and absorption of the alveolus has been so pronounced that there is no longer any attachment to the surrounding tissue; in other words, the root is absolutely dead. Are we justified in extracting such a tooth? If so, do you think that as capable surgeons, we have done our patient the best possible service or have we done them an irreparable injury? I maintain that such procedure is less excusable than if a general surgeon should insist on removing the entire hand because a portion of the bone in the little finger is necrosed.

In the case cited the entire palatine root should be amputated, for we cannot hope to correct such a pathological condition by medical treatment, and when this is accomplished suppuration will invariably cease almost immediately, and the remaining roots will become firm in their sockets and retain the tooth rigidly in the process, and regain a usefulness that is nothing short of miraculous in the eyes of the patient. What a fatal mistake it would have been to have removed such a tooth, for when the overhanging walls are trimmed down so as to parallel the remaining roots, you will have a posterior support for your bridges that will give you very gratifying results.

Experience has taught us that the most successful bridges have been small ones, which have been attached to strong, healthy roots or teeth. Bridges of ten or more are seldom admissible under any circumstances, unless the abutments are so placed as to equalize the strain or pressure caused by the force of mastication.

A bridge is a rigid structure, and when it is fixed to two or more supports, it can only assume the movement of one. The larger and more extensive the bridge, the more complicated become the forces that act upon it. Nature is generous in this direction, however, but there are cases when it sees fit to relieve itself of burdensome intrusions. There are certain prescribed limits wherein we are allowed to operate, and as soon as we understand the principles and laws that should govern us within these limits, and the failures and disasters that await us without, we shall have made some progress in the development of this most interesting work.

One of the great mistakes made today by many practitioners is the indiscriminate and unskillful use of open-faced crowns and bands as attachments for bridge-work. Personally I claim they are a curse to the success of bridge-work, and such pernicious procedure cannot be too strongly condemned. I honestly believe that, from both practical experience and observation, more good, strong, healthy teeth have been sacrificed and more failures resulted from the use of these abominable open-faced crowns than from any other method of attachment; and yet you will hear dentists elaborate upon the merits of this form of device, claiming that you are not obliged to mutilate the tooth in order to apply it. I can not agree with them, for all the anterior teeth are so shaped that it is practically impossible to band them perfectly at the gingival margin without grinding the tooth so as to utterly destroy its appearance, for as previously stated, a tooth prepared to receive a crown must have its greatest circumference at the gum line.

No matter how thoroughly or accurately the band has been adapted, the tooth substance is liable to disintegrate in a very few years, especially if the tissue is lacking in lime salts, and consequently is weak, and as a result you will have nothing to show but a failure for a piece of work that was supposed to be permanent.

Where the open-faced crowns are employed, there occurs in many instances a complete obliteration of the inter-dental space; the gold comes in direct contact with the approximal surface of the adjoining tooth and forms an admirable lodging place for debris, and in a very short time a cavity develops in this surface, a condition which would not likely have occurred had a proper attachment been used. I firmly believe that these open-faced crowns are contraindicated in every tooth in the mouth excepting the lower cuspids and centrals, the former being usually cone-shaped and requiring little or no shaping at all to receive the band, and the latter on account of preserving the natural crowns of the teeth, in order to give greater strength to the attachment, for these lower centrals are small and delicate in their structure, and should the natural crowns be incised it tends to weaken the attachment by lessening the strength of the abutment.

From the esthetic standpoint, these bands and crowns are decidedly inartistic, they are injurious and often destructive to the tooth to which they are attached, and are also a menace to the permanency of the bridge because they constitute its weakest part.

I am a firm believer in "Extension for Prevention" in bridge-work as in operative work, and when I can see that by incising the natural crown of a tooth and applying a Richmond crown for an abutment I can procure a greater degree of permanency, a more artistic effect, and more satisfactory results to my patient, I do not hesitate to do so; I fear that many of us are too conservative regarding this method of procedure, for when the root of the incised tooth is healthy and thoroughly filled at the apex and a properly constructed Richmond crown applied, you have one of the most perfect abutments for the anterior teeth that could possibly be inserted for a fixed bridge. It is strong, artistic and cleanly. There is absolutely no possibility of solution of cement and subsequent loosing of the piece, as is liable to occur where a band or jacket crown is attached.

The beauty of all artificial work lies in the ability of the artist to conceal his art, and nowhere is this more applicable than in crown and bridge-work. Do you think that bands, open-faced crowns and gold crowns in the front of a patient's mouth assist in disguising it?

Suffice to say, that if dentistry is to become universally acknowledged as a profession, embracing a field of dignified and scientific pursuit, and if crown and bridge-work is ever to be accorded that recognition of an art to which the scope of its possibilities entitles it, the practice of placing gold bands and gold crowns on any of the six anterior teeth or within the range of vision violates every principle of art. It is degrading and cannot be too vigorously condemned, for no matter how well the work has been performed, it is an offense to art and refinement.

A number of failures in bridge-work have resulted where the operator aimed to make a permanent piece of work, by anchoring its adjoining teeth by means of fillings either gold or amalgam or gold inlays. It is not surprising that such work is unsuccessful, considering that the principle is entirely at variance with the results desired. It is impossible to suppose that an occluso-proximal cavity of fairly good proportions can support the strain of mastication that is exerted on two or even one additional tooth, when experience teaches us that fillings in similar positions and of like dimensions frequently break down by the force exerted upon them. For in the molar region, as you are all well aware, there is a strain of from 70 to 250 pounds per individual tooth. Furthermore, by virtue of the elasticity of the alveolar process and the joint peculiar to the natural tooth, there is always a certain amount of movement to be overcome, and the security this mode of attachment offers is, as a rule, far from sufficient; either the filling becomes loosened or the bar becomes detached. None of us would think of filling two opposing approximal cavities in adjoining permanent teeth with one filling and expect a successful operation, yet the principle is identical. This class of work is not practicable, and seldom permissible, and cannot be expected to be successful, excepting in a case where the occlusion is very slight or wanting.

Considerable trouble has arisen from crowning and bridging teeth containing live pulps. The feasibility of sacrificing the pulps in teeth that are to be subsequently used for the abutment of a bridge is of the utmost importance to both the operator and patient. This subject has occasioned much discussion in the profession, and many practitioners, such as Peeso, Harlan, Kirk, Rhein and others favor the devitalization, while other men of good judgment, such as Black, Guilford and Hunt denounce such procedure as not being conducive to the best and most permanent results.

When a tooth has been crowned an abnormal condition has been established, and if the vitality of the pulp has been preserved, it is subjected to deleterious influences, sometimes caused by the action of the acid in the cement, but this can be remedied to a great extent by cauterizing the tooth thoroughly with silver nitrate, which is self-limiting in its action, and will, by coagulating the albumen in the tubuli, overcome the irritating influence and also prevent to a great extent the influence of thermal changes.

We encounter a more serious problem when we endeavor to overcome the excessive irritation that often follows the preparation of a tooth caused by cutting and grinding. Such procedure is very liable to cause a marked inflammation of the pulp, and unless relieved, will result in congestion, which finally terminates in the death of the pulp, and this may be followed by disagreeable pathological conditions, such as pericementitis, and eventually the formation of an alveolar abscess.

If the preparation of a tooth can be accomplished without any undue mechanical irritation or discomfort to the patient, the proposed bridge not being an extensive one, I believe in preserving the vitality of the pulp, but when the piece is extensive and I feel that there is the slightest possibility of any pathological disturbance resulting in the future, I do not hesitate to resort to a prevention procedure in every instance and devitalize. To accomplish this I prefer the use of cocaine to arsenic, for I believe the latter is responsible many times for inflammatory conditions that develop later and may terminate in peridental or alveolar disease.

It has been conceded by some of the best authorities in dentistry that the embryologic, if not the physiologic, function of the pulp is discontinued with the complete development of the teeth, which is usually about the eighteenth or twentieth year, so that after the maturity of the tooth, the pulp is not absolutely necessary for its stability. Accordingly, a great deal is gained by destroying it whenever we have any doubts concerning its vitality, thus saving ourselves considerable trouble and the patient untold suffering at some future time. This mode of treatment is not advisable in mouths of patients under eighteen years of age, for it is questionable if the teeth are fully developed before that period. However, little or no bridge-work is necessary at that age, unless it is to assist the orthodontists in supplying unerupted teeth. Nor is it necessary to destroy all pulps in the teeth of adults who have reached the age of forty or fifty because of the general tendency of atrophy of the organ, which, together with the secondary deposit of dentin, materially decreases the sensitiveness of the tooth so that the preparation can be accomplished with scarcely any irritation; consequently there is little danger of any future complications presenting themselves.

Faulty articulation has been responsible for numerous failures. It will play havoc with what might have been a perfect piece of work. The occlusion with the teeth, in the opposing jaw has everything to do with the success of bridgework, and nothing short of perfection in this particular wili answer.

Bridges of sufficient solidity, with abutments equally as firm, are often capable of resisting direct force or pressure caused by malocclusion. but will be utterly destroyed by indirect impacts. The most destructive of all these forces is the lateral thrust, as where the jaw is moved forward or sideways against the bridge as a lever. In such cases the strain of mastication will very soon force the abutments out of line and cause marked irritation of the membrane, and we are obliged to add one more failure to our list.

Discouraging failures have resulted from the unskillful use of the blowpipe and the utter disregard of certain requirements that must be observed if we wish to eliminate the danger of accidents, such as burning the case, checking the porcelain facings, and balling up of solder.

It is necessary that all the parts to be soldered should be absolutely clean before such procedure is attempted; any wax on the tooth should be removed by placing in chloroform; the metal parts should be treated to an acid bath to remove all oxidation and base metal, and thorough apposition of the cusps and backing should be observed. When backing the tooth allow the material to project beyond the approximal sides, so that when the teeth are assembled in the bridge and ready for soldering, the backing will lap upon each other, thus avoiding those troublesome joints between the facing as well as the objectionable V-shaped spaces.

In investing the case, use as little material as is practicable to hold the parts firmly in position. I do not know of a more admirable substance for this work than that used by Dr. Peeso, of Philadelphia. It is ordinary red bird gravel or sand, two parts to one of plaster, which gives a dense and strong investment, capable of being carved or trimmed to a very compact form and showing no perceptible shrinkage when heated.

When ready for soldering, place the case over a burner on a disk of copper plate, so as to diffuse the heat, making sure that the porcelain facings are heated first, as you are all well aware, the porcelain, being a mineral substance, absorbs the heat more slowly than the platinum pins and consequently the expansion of this substance should precede that of the pins, otherwise a fractured facing is liable to result. Therefore, be careful in applying the heat to see that it is gradual and uniform, dust the surface to be soldered very lightly with dry powdered borax, and increase the temperature of the piece with the blowpipe until it reaches a red glow. Now you are ready for soldering; the solder having previously been cut into a long strip, dip in liquid flux and apply to the particular part of the bridge you wish to unite, at the same time cutting down the flame so that it will play directly on the extremity of the solder; unite the cusp to the abutments first and then the cusps to each other, and by so doing you will tend to overcome shrinkage by avoiding an excess of solder in any one area. When this has been done, keep feeding your solder in at the lingual edge of the cusps until the desired contour has been acquired. By manipulating the solder in this manner, you can direct it to the exact spot you wish it to flow; there is no "balling up" and no air bubbles are confined, causing a porous piece when completed, and if the slightest care is exercised it is next to impossible to burn the bridge.

Do not throw your solder into the case like so much kindling in a wood box and expect that after you have given it a generous sprinkling of borax and heated it to a temperature sufficiently high to cause it to fuse that you will not have your troubles. It is almost sure to ball up and in your endeavor to make it flow after it has been thoroughly oxidized, the first thing you know you have alloyed the gold in your bridge and a burned case is the result. If the dentist will apply himself closely to a few rules that must be observed, he will soon acquire such skill as will render this procedure one of the simplest in dentistry and he will be surprised with what ease and dexterity successful results can be accomplished.

In concluding, I have no hesitancy in saying that there is no form of replacement that can approach in appearance, comfort and utility that of a well-conceived, proportioned and constructed bridge. I may also add with propriety, that another accompaniment to a finished bridge is cleanliness. This property of cleanliness is what appeals to me so strongly in favoring removable bridge-work, for from the hygienic, practicable and mechanical standpoint it discounts fixed bridge-work in every respect.

Such bridges can be easily removed by the patient, thoroughly sterilized and readily replaced, insuring a healthy condition of the membranes of the mouth and a clean, sweet breath.

Another very strong point in its favor is that in event of an accident, a removable bridge is so easily repaired, as the work can be done in the laboratory without any loss of time or discomfort to the patient.

Should an abutment loosen, it can be reset in a few minutes; to remedy such a condition in a fixed bridge of several teeth, sometimes necessitates the ruination of the entire piece especially if a couple of Richmond crowns are involved.

All things being considered, there is no question that a removable bridge is the most perfect and excellent form of replacement; and to be successful in this work a man should be a thinker, must possess keen judgment and discernment, for so many complicated cases arise that each one requires a special study. He should be an accurate and skillful mechanic, a metallurgist, and above all, an "artist".—Dental Register.

CROWN AND BRIDGE-WORK.

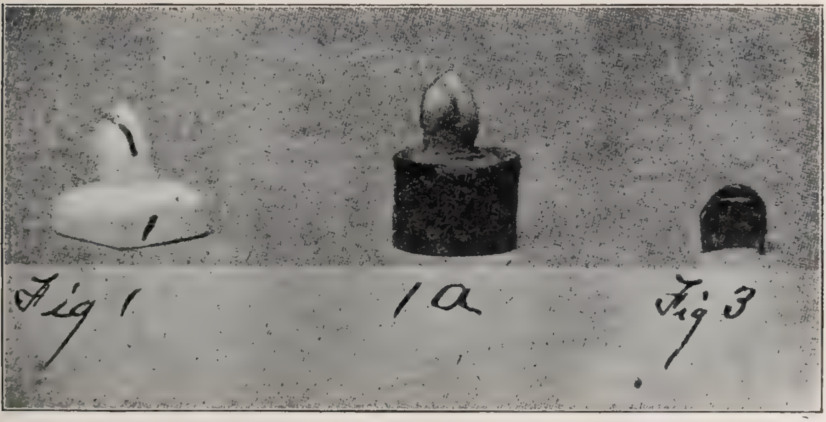
By Wm. H. Cudworth, D. D. S., Milwaukee, Wis.

In discussing this subject, we will consider the crown only as an attachment to the bridge teeth, to secure them to the abutments.

Going back to the beginning of the last decade, when bridge-work was beginning to be recognized as having a distinctive place in the practice of dentistry, we find that many men were averse to its use, because the broad gold bands used then for the attachments tended toward a hideous disfiguration of an otherwise wholesome and attractive mouth.

With the passing of the years, a seeming evolution in this department of our profession has been in progress, and as pronouncedly toward the esthetic as in the matter and manner of filling teeth. The gold bands, from their lack of permanency, gave place to the shell crown. Then, as the dentist gained courage, or was overcome by his desire to increase his fee, and could bring himself to destroy the pulp in teeth which had withstood the decay that had destroyed their neighbors, he ruthlessly cut them away and replaced them with some form of porcelain crown—or that commonly known as the Richmond crown was used for the attachment, and from the point of disguising the artificial, was a great improvement on the original attachment.

Considering both the strength and the esthetic qualities of the staple crown, it seems strange that its manifold merits have not a more general recognition among men of the profession who are constantly looking for the best in their practice. I claim no originality in this device, it having been presented to the profession in the May Cosmos of 1888, by Dr. G. W. Bennet, and also was described very thoroughly some years later by Dr. Marshall. It is certainly worthy of consideration in connection with the bridge teeth to be supported in the case I shall describe.



In this case, viz., the loss of two bicuspids and the first permanent molar, the clever practitioner, by using the following methods will be able to give his patient a restoration which will, under ordinary conditions defy detection, except by the initiated.

First, with suitable carborundum stones, we grind away the enamel on the lingual and occlusal surfaces of the teeth that carry the attachments.

Second, cut the grooves across the occlusal surface with stone and fissure bur, then down the approximal surfaces with a bur in the right angle, the proper size to receive the staple made of platinum iridium wire, gauge 21. (See Fig. 1A).

Care must be taken not to form these grooves larger than the wire, and to have them of sufficient depth to wholly engage the same.

Third. Having made the staple and carefully fitted it to the groove, and while it is inserted in the same, take an impression in modeling compound; remove staple, and place in impression and pour with plaster. Cut tooth from cast and trim well back at cervical line. (Fig. 1).

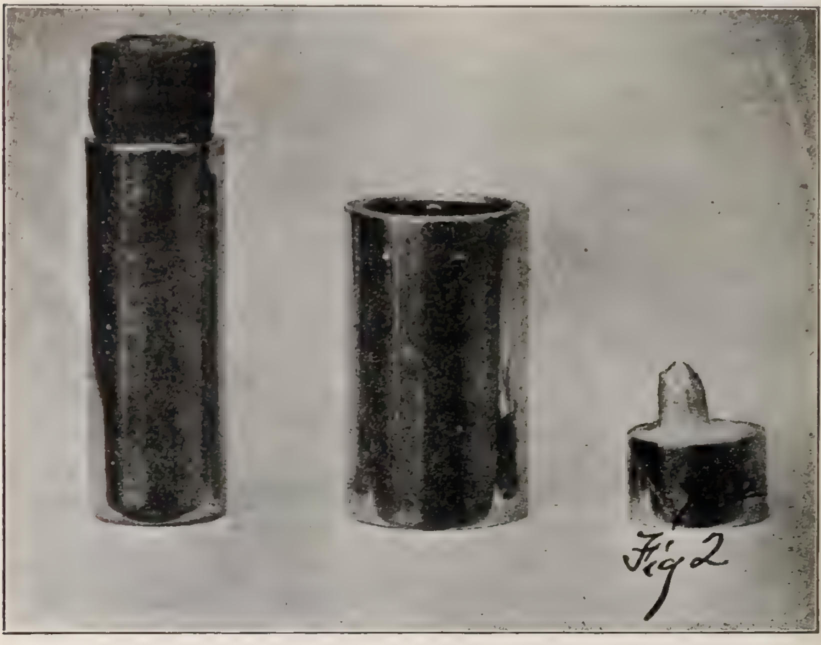


Fig 2

Fourth. An impression of this plaster tooth in moldine is now made, and poured with Melotte, or other hard low-fusing metal. (Fig. 2x2).

Fifth. Take 22-karat plate gold, 32 or 33-gauge, cut the proper shape, place in swage and with two or three quick blows, adapt to proper shape, trim, solder seams and swage again. Remove staple from plaster model and solder in groove in hood. (Fig. 3).

Before proceeding farther, place the crown upon the tooth in the mouth for final burnishing and reinforce with 22-karat solder. Then file and trim to perfect the occlusion and we are ready to proceed in the usual manner, to obtain the impression and bite for the restoration; the crowns placed on the teeth in the mouth, and impression and bite taken at the same time in some good modeling compound. The facings selected for the case are then carefully ground to place, and by beveling the incisal edge may be backed and tipped with cusps, producing a good occlusal surface for the opposing teeth, with so little show of gold that it will be scarcely noticeable, except on close examination. By the use of these attachments and diatoric teeth a bridge may be made for the lower jaw almost as artistic as the upper.

The method described produces a substitute for lost teeth that includes more good features than any other. It possesses the esthetic quality to almost as great a degree as the all-porcelain bridge. It has the greatest amount of strength possible to give any attachment; we have no other whose resistance to force and lateral stress commences at the incisal end of the artificial substitutes.

In cementing the staple crown into place care should be taken to burnish the edges of the crown close to the tooth, leaving the smallest possible exposure at any place to prevent the dissolution of the cement.—Dentist's Magazine.

SUGGESTIONS

A SIMPLE METHOD OF REPLACING BROKEN FACINGS ON CROWNS AND BRIDGES.

M. R. Brinkman, Hackensack, N. J.

The instruments necessary for the clinician's method consist of two drills—one for the regular handpiece and one for the right angle—one die, one tap and holder, one wheel bur, and one pair of pliers.

To repair a facing proceed as follows: Cut the pins from the backing, and with a small carborundum stone slightly concave the backing so that the facing will bear firmly on the edges of the former. Select the proper tooth. Hold it carefully in the required position, and mark with a pointed instrument the exact points to be drilled in the backing. Drill the holes, slightly diverging from the center, then use the tap to cut the thread in the latter. With the wheel bur cut a groove on the palatal side of the backing, between the holes, for clinching the pins. Take the die, and cut a thread on the pins of the tooth. At this stage of the process the tooth will be ready for cementing to place. Mix the cement fairly stiff, apply to the backing, and force the facing firmly to place. Hold it in position, and with the pliers pinch the pins into the groove; allow the cement to set, and then grind the pins flush with the backing. This completes the operation.

The special point of retention which differs from those in other methods is the interlocking of the thread on the pins with the thread in the holes of the backing. Two other points of retention are the cement and the clinching of the pins, which have been in vogue for some time. By using a small inverted cone bur, and cutting out the cement on both sides of the pins, a gold or alloy filling can be inserted in the backing, although it is not absolutely necessary for the permanent retention of the facing.—*Dental Cosmos.*

A METHOD OF REPAIR THAT CAN SUCCESSFULLY BE APPLIED TO SOME CASES OF FRACTURED BRIDGE OR CROWN FACINGS.

H. H. Bethel, Philadelphia, Pa.

A case once presented itself in my practice in which circumstances rendered it inexpedient for me to remove a piece of bridgework in order that two bicuspid facings which had broken off might be repaired. The bite was such that it would not admit of any extra metal linguo-occlusally, and the backings were so thin that I could not hope to use such a method as Zentner's riveting or Bryant's screws and nuts.

I may say here that the facings had broken out on account of too thin a backing and exposure of the facings to a very heavy bite.

Realizing that I could not employ any of the usual methods, I thought out the following, which may be in use by many, although I had not before heard of it, and a claim to originality is of less moment than the usefulness of the idea:

I trimmed the old jagged backing and bent it with pliers until I had nothing more to fear from the bite. Then I straightened the pins, and filed the little heads up, so that they were of the same gauge as the pin. Of course, in cases in which the pins in soldering have been crystallized, and snap off in the porcelain, this method cannot be employed. The pins must be intact after the remaining chips of broken facings have been cleared away.

Now prepare to bake porcelain-inlay facings. A matrix is needed. This can be burnished directly on the bridge, or a dental lac or modeling compound impression taken and the matrix burnished to the model. I can suggest but two methods to obtain the holes in the porcelain facings so as to allow the new facing to fit down over the pins:

(1) Take platinum tubing that fits accurately over the pins. Cut off little pieces a trifle longer than the pins, and pinch this trifle in the pliers while the tube is still on the pin. This closes the one end of the tube. See that the tubes, two to each tooth, come readily away from the pins. Now burnish the foil—either No. 30 gold for low-fusing or 1-1000 platinum for high-fusing body—to the old backing and the gum, allowing the pins to puncture it. When well burnished replace the little tubes, and with

yellow beeswax—as hard as it can be worked—remove the matrix and tubes together. Carefully, and without disturbing the position of the tube in the wax, slip steel pins one-fourth to three-eighths of an inch in length into the tubes and pour the impression with powdered asbestos 2 parts, plaster of paris 1 part, engaging the protruding pin ends. The pins should be selected beforehand and should accurately fit the tubes. Coat with moistened whiting the end that goes in the tube. Dry the cast gently, remove the wax by dry heat and cotton fiber, and bake on the porcelain body in such a way as to avoid drawing the tubes awry, and contour carefully at the cervix.

(2) This method is similar to the first in the general method of procedure, except that instead of platinum tubes, gold-wire pins a little heavier than the tooth-pins are baked in the new facing. These pins of pure gold are slipped into the wax impression through the punctures in the matrix, no tubes having been used in the procedure.

The pins are long enough to be held by the investing material, and are afterward cut off and with the engine bored out of the porcelain. As the gold is so soft, this can be readily accomplished. Set the facings with cement as carefully as for an inlay, roughening the pins, backings, and back of the facing. Protect well while the cement is setting.

If the bite is judiciously handled, the work will be successful and although the account is somewhat lengthy, the method is really a very easy one to a man accustomed to working with porcelain.—*Dental Cosmos.*

LITTLE HELPS.

When polishing posterior fillings, to avoid scratching the mirror, and to keep the tongue and cheeks away while doing the work, I find nothing better than a medium-size teaspoon. Insert it always with the concave side toward the surface to be polished, and you will find with what ease the work can be accomplished. and will be surprised at almost complete shutting out of saliva.—*Dental Practice.*

CORRESPONDENCE

DENTAL CLUB ORGANIZATION.

The dentists of Montgomery county, Illinois, met in Hillsboro Friday evening, the 14th of June, and organized a dental club, with all the dentists of the county present except two from Litchfield, and it is hoped that they will be secured. The idea of the organization is, by monthly meetings, to promote the public welfare by research, investigation, clinics, papers, etc., also in a manner to be of financial benefit and support to each other by the adoption of a minimum scale of charges to govern all professional services. There will also be kept a black list, which will contain the names of all in the county who are found to be dead beats and unworthy of professional services, and nothing of an operative nature will be rendered these people by members of the club, other than to allay pain temporarily until they square themselves with the practitioner they are indebted to. The organization of such a club will not only be of much benefit to the public at large, and to the individual members from an educational standpoint, but it will put a stop to the bargain-counter hunter who goes from one office to another asking for prices on contemplated work. There has been quite an amount of price-cutting throughout this territory, as one man would quote prices on a denture of the highest grade of material, when, upon visiting another man, and stating what he had promised to do the work for for So-and-So, this man would in all probability quote a less price in order to get the work, and in order to make a just compensation for his services, use a much cheaper class of material. This condition of affairs makes competition not only hard to meet, but is a disgrace to a profession, as it has a tendency to put the profession on a commercial basis. Another point is, to all get together and secure better prices on all dental operations; the continual advance in the price of all classes of materials makes this move very necessary; but the time is ripe for such a move throughout the state. We are paying from 40 per cent. to 200 per cent. more for material now in a great many instances than we did a few years ago, and most of the men were obtaining no more for their services than they did before the advance. Although our rent has advanced, groceries, clothing and all other necessities to sustain life, common labor, as well as most all trades, have advanced from 20 to 100 per cent., and if we are ever to secure enough of the "long green" to sustain us during the period of old age, when we are compelled to lay away our instruments and live on the labors of today, we must all get together, demand more and get it. We are arranging to have printed a minimum scale to govern the charges for all services, have it printed in a neat form, and have attached the names of all members of the club in their original handwriting, and hang it in a conspicuous place in our offices, when, if one comes in and states that they can do so much better across the street, we can just point to our agreement and state that none of the men are at present cutting each other's throat in order to get a small piece of work. If they object to the increase in price, all that is necessary is to state that we are now paying an advance for our material over former conditions and that we are only making a charge that will enable us to use not only a high grade of material, but be enabled to take the time necessary to give the work the necessary time and attention to do it, to the best of our ability. We think such an organization would be of benefit to all the rural districts, and probably practical in the larger cities. The following men were selected for the ensuing year:

President, Dr. B. F. Green, Nokomis, Ill.; vice-president, Dr. P. H. Winans, Hillsboro, Ill.; secretary, Dr. T. T. Baker, Litchfield, Ill.; treasurer, Dr. G. G. Garrison, Coffeen, Ill.

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OBITUARY

DR. J. B. BEAUMAN.

Dr. J. B. Beauman, of Columbus, O., and one of the pioneers of the state, died June 19, 1907.

Dr. Beauman had just passed his 79th year, his birthday having been celebrated on June 7. For more than a year and a half he had been an invalid. Then he began to decline and went to the home of his daughter, Mrs. Clemmer, to spend the remaining days of a busy life.

He was born at Harrisburg, Va., and had practiced his profession in Columbus 57 years. He was a dentist in Delaware eight years before coming here in the early fifties, when there were only four men of the profession in the city. He was one of the organizers and charter members of the State Dental Association, formed in 1866. There are now only two living members of the original founders. In 1902 he was made president of this organization. He was one of the organizers and charter members of the Columbus Dental Society, founded in 1895. He served as the first president, and in 1879 received the degree of doctor of dental surgery from the Ohio college at Cincinnati. Dr. Beauman was a member of the faculty of the dental department of Ohio Medical University from 1895 until he had to give up his practice.

He was one of the best known porcelain men in the country, and was a mechanical genius.

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NEW PUBLICATIONS

Dental Formulary, a practical guide for the preparation of chemical and technical compounds and accessories used in the office and laboratory by the dental practitioner, with an index to oral diseases and their treatment, including the modern methods of local anesthesia, by Hermann Printz, M. D., D. D. S., Professor of Materia Medica and Pathology, Washington University Dental Department, St. Louis, Editor of The Dental Era. Illustrated. Published by the Author, 1907.

The object of this work is to furnish the practitioner and student with a reliable guide to technical information as needed in the office and laboratory, the matter having been gleaned from English, German and French current literature, and other sources.

Those who know the author will at once realize that the work has been well done and is full of valuable suggestions.

The matter is concisely presented and embraces many subjects, covering more than 300 pages; for instance, plaster of paris preparations, investment compounds and molding materials are first considered, and many formulae for the hardening of plaster casts, to hasten or retard the setting of plaster, to dissolve set plaster, to remove from rubber plates, to repair plaster casts, separating fluids, varnishes, molds for duplicating plaster casts, preparation and painting of durable plaster casts, improved impression materials, moldine, oiled molding sand, investment compounds for soldering, etc.

Other subjects similarly treated are: Waxes, gutta-percha preparations and plastic impression compounds, dental cements and varnishes, metals and alloys, plating, coloring and lacquering of metals, preparations for the mouth and teeth, pharmaceutical compounds, and newer remedies of interest to the dentist, prescription writing, modern methods of local anesthesia, an index to oral diseases, their etiology, diagnosis and treatment, including accidents of general anesthesia and acute poisoning, consideration of miscellaneous matters, and tables of special interest are appended.

Altogether, it is a valuable book for both practitioner and student. A handy and useful reference book that should be in every dental office.

Wellcome's Photographic Exposure Record and Diary. Price fifty cents. Published by Burroughs, Wellcome & Co., 45 Lafayette St., New York, 1907.

This little book is a compact compendium of photographic information, and in addition it provides a pocket notebook, a diary and ruled pages for systematically recording exposures in the field or at home.

Many valuable suggestions are given, among them being plate speed tables and monthly light tables, which amateur photographers especially will find of great value. To those interested in photography it is a valuable little book.

Transactions of the National Dental Association, 1906.

The book of transactions of the Atlanta meeting contains the usual interesting material presented at this society. It is well edited, printed and bound by the S. S. White Co.

SOCIETY

THE N. D. A. CLINIC.

It seems fitting at this time to say something more regarding the clinic which shall be held in Minneapolis on July 31st and August 1st.

Dr. W. N. Murray, the chairman of the inlay section, will have everything which is new and of interest demonstrated in cavities in the human teeth. There will be no less than twenty clinical operations. The foremost men in the profession, who are believers in the use of some kind of an inlay will be on hand, ready not only to demonstrate, but to do everything possible that will interest others in their specialty.

Dr. F. S. Yaeger will have entire charge of this special department, and he will appoint his own corps of assistants.

Those interested in metal fillings may rest assured that this special part of the clinic will not be neglected. The members of the G. V. Black Dental Club of St. Paul, the Conzett Club of Iowa, the Searl Metal Filling Club, the Woodbury Club of Council Bluffs, as well as other organizations of this kind, have signified their intention to be present and take an active part in the clinic. Members of these various organizations are so favorably known that it seems needless for me to say anything about them.

There is every evidence at hand that the table clinics will be along their usual high order. Everything which is of value will be demonstrated for the benefit of those who attend.

Special demonstrations have been arranged for the first day of the clinic. Dr. Wm. Finn, of Cedar Rapids, Iowa, one of the leading teachers of advanced work in the middle west, will bring with him to the meeting large wooden teeth with cavities cut in various surfaces. Dr. Finn will demonstrate the Black methods of preparing and filling cavities with metal fillings. There will also be a number of young ladies present—dental assistants—who will demonstrate the Black method of preparing gold cylinders and pellets. These demonstrations will take place at the first day's clinical session.

Another thing which may be of interest to a great many practitioners is a clinic which will take place at the second day's clinical session. A patient having approximating cavities in the upper right bicuspids will be operated upon by brothers. Dr. G. N. Beemer, of

Mason City, Iowa, will fill the cavity in the mesio-occlusal surface of the second bicuspid, and upon its completion Dr. H. J. Beemer, of Newton, N. J., will then make the operation in the disto-occlusal surface of the first bicuspid. This operation will give every one who is interested a chance to observe the methods employed by two men who live in different sections of the country, but who are practicing along similar lines. These are just some of the side issues, so to speak.

There is much more which I might say, but I have not the time.

In the past, the time mentioned on the program for the beginning of the operations has been understood to mean any time that would suit the operator. I do not know what the clinicians will do at the first day's session. The operations to be made at the second day's session will begin promptly on time.

The clinical program will be published next month. This journal will have it as complete as possible.

E. K. WEDELSTAEDT,
Chairman Clinic Section.

JAMESTOWN DENTAL CONGRESS.

In view of the statements that have gone out in relation to the lack of accommodation and high hotel charges in the vicinity of the Jamestown Exposition, we, the Virginia members of the organization committee of the Jamestown Dental Convention, deem it wise to make a formal statement of the situation, that the members of the profession who contemplate attending the convention at the Jamestown exposition, Norfolk, Va., September 10-12, may not be misled or deterred in their purpose:

While at this time the exposition is not entirely completed, it presents a very attractive appearance and is well worth seeing, and by the date set for the convention it will not only be fully completed, but will be at the very height of its perfection.

Aside from any attraction that is offered by the exposition, the assembling in Hampton Roads of the fleets of the nations of the world is amply worth the trip to the Jamestown Exposition.

The Jamestown exposition grounds are not located in any one city, but are nearly equi-distant from the tidewater cities of Norfolk, Portsmouth, Newport News, Hampton and Old Point Comfort, and within thirty minutes' ride by rail or water of any one of them.

The hotels and cottages of the summer resorts of Pine Beach, Luckroe Beach, Ocean View, Willoughby Beach, Cape Henry and Virginia Beach will be utilized for the accommodation of visitors.

The suburbs of Norfolk, Portsmouth and Newport News, such as West Norfolk, Port Norfolk, South Norfolk, Berkley, Riverside, River View, Edgewater, Lambert's Point, Parke Place, have many comfortable homes that will be opened to receive guests, and are all well connected with electric lines of street railway to points of departure for the exposition grounds.

We append a list of some of the leading hotels and their rates per day. In order to secure these rates it will be necessary to make reservations not later than August 15th.

The Inside Inn, with a capacity of 3,000 persons, will be the official headquarters of the convention. The following are the rates of the Inside Inn:

European plan, without bath, two persons in a room, which includes breakfast, privileges of the Inn, and admission to the grounds after the guest has registered at the hotel, $2.50 per day for each person. If room is occupied by only one person, the rate will be $3.50 per day.

American plan, without bath, two persons in a room, which includes breakfast, privileges of the Inn, luncheon, and our $1.00 evening table d'hote dinner with wine, admission to the grounds, after the guest has registered at the hotel, $3.50 per day for each person. If room is occupied by only one person, the rate is $4.50.

The rates for rooms fronting the sea, or the sea and pine grove:

American plan—If room is occupied by only one person, the rate will be $6.00 per day. If room is occupied by two persons the rate will be $8.00 for the two persons.

American plan, with bath and toilet, $8.00 per day for one person in a room; if room is occupied by two persons, the rate will be $10.00 for two persons.

The following is a partial list of Norfolk and Portsmouth hotels:

Algonquin hotel, Granby St. and College Place, $1.00 per day and up.

Atlantic hotel, Main and Granby Sts., $1.00 per day and up.

Colonial hotel, 202 Granby St., $1.00 per day and up.

Hotel Fairfax, City Hall Ave. and Randolph St., $1.50 per day and up.

The Monticello, City Hall Ave. and Granby St., $1.50 per day and up.

Gladstone hotel, Main and Nebraska Sts., $1.00 per day and up.

Haddington hotel, Granby St. and City Hall Ave., $1.00 to $3.00 per day.

Hotel Savoy, Granby St. and City Hall Ave., $1.00 to $3.00 per day.

Caroline hotel, Atlantic and Plume Sts., $1.00 per day and up.

St. Denis Hotel, Main St. and Roanoke Ave., $1.00 per day and up.

Terminal hotel, Plume and Atlantic Sts., $1.00 per day and up.

Henry Seelinger, 39-41 City Hall Ave.

Lynnhaven hotel, Freemason and Granby Sts., $2.50 per day and up.

Union hotel, 35 Brewer St., 50c per day and up.

STAG HOTELS.

The Lee Stag hotel, 97 Bank St., $1.00 per day and up.

McDonalds, Main St. and Commercial Place, $1.00 per day and up.

Victoria, 359-361 Main St., $1.50 per day and up.

Henry Seelinger, 39-41 City Hall Ave.

PORTSMOUTH.

Hotel Monroe, Court and High Sts., $1.00 per day and up.

Hotel Fairfax, Crawford and High Sts., $1.00 per day and up.

Pearson Hotel, High and Water Sts., $1.25 per day and up.

In addition to the hotels named above, there are hundreds of private boarding houses and rooming houses, at which visitors may secure accommodations at reasonable rates.

We will thank you very much to give the above information as wide publicity as you can through your esteemed journal.

Yours very truly,

R. H. WALKER, Norfolk, Va.
F. W. STIFF, Richmond, Va..
H. W. CAMPBELL, Sec'y.
Organization Committee.

AFTERMATH

Dentist Breaks Arm.—Dr. Wm. H. Scholl, a dentist of Reading Pa., met with an accident near Alburtis and sustained a broken arm.

Destroyed by Fire.—The dental offices of Dr. W. E. Simmons, Fulton, Ky., June 5; the offices of Dr. W. J. Ogg, Utica, O., June 27.

Dentist Kills Himself.—Dr. H. L. Tripp, 55 years old, a dentist, of Cleveland, shot himself in the head, causing death instantly, at the city infirmary, June 11. He was suffering from paralysis.

To Change Business.—Dr. W. A. Quinn, Pueblo, Colo., has decided to give up his dental practice and will leave soon for Kalamazoo, Mich., where he has purchased an interest in a plumbing supply house.

Pennsylvania State Dental Society Souvenir.—Handsome booklets containing over 50 views of Pittsburg, most of them new, have been put out by the dental executive committee, of which Dr. C. B. Bratt is chairman.

Colorado State Dental Association.—Officers elected were: Dr. G. A. Dille, of Denver, Colo., president; W. O. Brownley, of Denver. vice-president; Dr. Morton, of Boulder, secretary; W. E. Snedley, of Boulder, treasurer.

Michigan State Dental Association.—Officers elected were· President, E. B. Spalding, Detroit; vice-president, L. N. Hogarth, Detroit; secretary, George H. Copp, Plainwell; treasurer, J. Ward House, Grand Rapids.

New Dental Building for University of Michigan.—The contract for the construction work of the new dental building of the university has been let for $85,000 by the board of regents. It is estimated that the cost will be $125,000.

Dentist Suicides.—Dr. Henry S. Latshaw, a well-known dentist of Vincennes, Ind., killed himself June 28, by firing a bullet into his brain. Grief over the death of his wife and daughter and financial troubles are said to have been the motives.

Semi-Centennial Jubilee.—The Indiana State Dental Association has begun active work in preparing for a semi-centennial jubilee meeting to be held in Indianapolis, June 4, 5, 6, 1908, celebrating the fiftieth anniversary of the state association.

Oklahoma State Dental Association.—Officers elected were: President, Dr. C. L. White, of Oklahoma City; second vice-president, Dr. R. V. Hirschi, Guthrie; secretary, Dr. F. S. Stickel, Muskogee; treasurer, Dr. A. F. Nicholson, of El Reno.

Washington State Dental Board.—Dr. E. B. Edgars was elected president of the board and Dr. H. D. Brand was elected secretary. There were 42 applicants for certificates to practice dentistry in this state, but only half of that number passed the examination.

Gives Up Dentistry.—Dr. Frank G. Stover, who formerly practiced dentistry in Rockford, Ill., and is now located at Jonesboro, Ark., has given up his practice and joined with J. C. Alfrey in the wholesale lumber trade, with the firm name of Alfrey & Stover.

Fined for Illegal Practice—Evan B. Rosenkrans, of Providence, R. I., who has been before the public more or less during the past winter by reason of his conflict with the State Board of Dentistry, was found guilty of practicing without a license by a jury in the superior court under Judge Baker.

Texas Dental Association.—Officers elected were: Dr. A. A. Dyer, of Galveston, was elected president without opposition; Dr. G. W. Collier, of this city, was elected vice-president; Dr. C. Julian Smith, of Austin, was elected second vice-president; Dr. J. G. Fife of Dallas, was elected secretary-treasurer.

Appointed Members S. Dakota State Board.—Governor Crawford appointed G. W. Collins, of Vermilion, for a six-year term as a member of the State Board of Dental Examiners and appointed J. G. McCartney, of Mitchell, to the same board to fill a vacancy caused by the revoking of the certificate of C. Larson.

Dr. Seeger to Remain a Member of Board.—Dr. Charles Seeger, of Manitowoc, Wis., will continue as a member of the State Board of Dental Examiners under reappointment of Gov. Davidson, which has just been announced. Dr. Seeger has served one term as a member of the board, and is now appointed for four years.

Arkansas Dental Board.—Acting-Governor Pindall appointed members of the state dental board as follows: Drs. Charles Richardson, Fayetteville; C. C. Sims, Dardanelle; C. G. Farrow, Little Rock; Charles Burgstrasser, Eureka Springs, and A. T. McMillan, of Little Rock. The appointees will serve for two years.

Dental Associations Merge.—The Oklahoma and Indian Territory Dental Associations were amalgamated, June 19, and the following officers were elected: Dr. C. L. White, Oklahoma City president; Dr. Day, Vinita, first vice-president; Dr. R. O. Hirsch, Guthrie, second vice-president; Dr. F. A. Stickel, Muskogee, secretary.

Missouri State Dental Association.—Officers elected were: President, J. W. Hull, of Kansas City; first vice-president, J. B. McBride, Springfield; second vice-president, R. E. Darby, Springfield; recording secretary, H. H. Sullivan, Kansas City; corresponding secretary, E. P. Dameron, St. Louis; treasurer, J. T. Fry, Moberly.

Injured by Vulcanizer Explosion.—F. C. Jarvis, a dentist of Benton Harbor, Mich., suffered injuries June 7, by the explosion of his vulcanizer. The doctor undertook to disconnect the apparatus when through using it, and while in the act there was an explosion which badly burned him about the face, hands and clothing, and did some damage in the office.

Florida State Dental Society.—Officers elected were: Dr. A. S. York, Live Oak, president; Dr. A. B. Phillips, St. Augustine, first vice-president; Dr. George D. Young, St. Augustine, second vice-president; Dr. D. G. Barnett, Arcadia, treasurer; Dr. Carroll H. Frink, Fernandina, corresponding secretary; D. R. P. Taylor, Jacksonville, recording secretary.

Injured by Explosion.—In a disastrous fire at the small town of Illmo, Mo., June 15, Dr. R. G. Williams, a dentist, was severely and probably seriously burned about the face and head. An explosion of gasoline in his office caused the fire, which destroyed two buildings. The ignited fluid spread over the office and rescuers could barely drag out the unconscious dentist.

Doings of the Missouri State Board.—The State Board of Dental Examiners, in session at Jefferson City, adopted a resolution revoking all licenses issued to dentists to practice in the state who have not paid their annual renewal license fee of $1, due for the last two years or more. The action takes effect July 1st next. It was stated that about 500 dentists are delinquent in payment of this fee.

South Dakota Dental Association.—Officers elected were: President, Dr. C. A. Cook, of Madison; vice-president, A. L. Revell, of Lead; secretary, Dr. Ferd Brown, of Sioux Falls; treasurer, Dr. J. W. Smotts, of Beresford. The names of Dr. Ferd Brown, of Sioux Falls, and Dr. E. H. Wilson, of Yankton, were selected by the society to be presented to Governor Crawford to fill any vacancies that may occur in the State Board of Dental Examiners.

Barnes College Goes to State University.—In the acceptance, June 29th, by the board of curators of the Missouri State University of the endowment by the board of trustees of the Barnes University of St. Louis, which carries with it the buildings, ground and equipment of the Barnes University, medical, dental and pharmaceutical, and the Centenary Hospital, valued at $275,000, St. Louis has won against Kansas City for the location of the State Medical College.

Convicted of Killing Wife.—Dr. Samuel S. Guy, a New York dentist, and at one time coroner of the borough of Queens, was convicted of manslaughter in the first degree, June 22, in the supreme court, Flushing, where he had been on trial for a week for the murder of his wife, Lillian Guy, in their home in Far Rockaway, on April 8 last. His counsel, waiving the right for two days' notice of sentence, the defendant was sentenced to fifteen years in prison.

Injured by an Auto.—Dr. Frank Gehrung, a prominent dentist of North Attleboro, Mass., was seriously injured by being thrown from an automobile, June 9. Gehrung, with several friends had been on an outing at Lake Pearl. On the return trip the rear wheel of the machine came off and the party was thrown over an embankment, with the machine following after. Gehrung struck a stone wall and received three fractured ribs, a broken nose, dislocated wrist and other injuries. The others escaped.

Changes in State Dental College, Dallas Tex.—Dr. C. C. Weaver, of Hillsboro, Tex., who for ten years has been a member of the State Board of Dental Examiners of Texas, has been elected secretary of the State Dental College, and will give his entire time to this institution, also fill the chair of prosthetic dentistry. Dr. H. T. Walker, of Denison, Tex., has been elected dean of the State Dental College, and will have the chairs of operative dentistry and crown and bridge-work.

County and District Associations to be Formed in Indiana.—The Indiana State Dental Association, which convened June 11, at Indianapolis, contemplate the complete reorganization of the association. Auxiliaries will be organized in the different counties, and, perhaps, merged into district associations, all affiliated with the parent association. The names of F. R. Hinshaw, of Middletown; A. Jameson, of Indianapolis, and J. R. McCurdy, of Fort Wayne, as members of the State Board of Dental Examiners, were sent to the governor for his approval.

Handsomely Rewarded by Ameer.—Dr. D. H. Davison, formerly of Streator, Ill., who has been in Burmah for some time establishing dental clinics for the king of Burmah and on his own account, has arrived home. While in Burmah he met another young American, who had been official dentist for the army of the Ameer of Afghanistan, at a large salary. The ameer was so pleased with the man's work that he promised him a handsome present in addition to the salary. So often was this bonus mentioned that the American expected something magnificent. When the contract expired the ameer summoned him, and, with an important and mysterious air, presented the American with a package containing a cheap American nickel watch.

Deaths.—Dr. Albert Lull, of Nashua, N. H., May 8, over 80 years of age. Dr. Oliver Colburn, Big Rapids, Mich., June 7, of pneumonia and heart trouble, aged 76 years. Dr. Wm. Roberts, North Yakima, Wash., June 8, of cancer. Dr. John I. Hart, New York, June 9, of heart failure, aged 41 years. Dr. Austin J. Morris, Indianapolis, Ind., June 13, aged 56 years. Dr. J. B. Beauman, Columbus, O., June 18, aged 79 years. Dr. Thomas Palmer, Fitchburg, Mass., June 18, of heart failure, aged 87 years. Dr. Willard M. Smith, Manchester, N. H., June 21, aged 79 years. Dr. Emil Tostlebe, Cedar Falls, Ia., June 26, of lockjaw, aged 24 years. Dr. Samuel W. Bridges, Brooklyn, N. Y., June 28, of paralysis, aged 77 years. Dr. C. A. Fink, New Cumberland, W. Va., June 27, aged 31 years. Dr. Henry Fraser, Washington Park, R. I., June 28, aged 68 years.

Court Rules Against "Unethical" Dentists.—The Washington state supreme court, June 4, unanimously decided the suits of Dentists Edwin J. Brown and H. C. Littooy against the state, state dental board and previous dental examining board, the decision being for the defendants. Brown and Littooy have been contending for years that the state dental board and other dentists have conspired to deny them dental licenses and have asserted that a chief reason for this was that Brown and Littooy are heavy advertisers, which is considered unethical by the dental board. Both Brown and Littooy were arrested for practicing without license and were convicted. The supreme court decides for the defense in these cases on the grounds that the suit is to review and annul a criminal conviction to compel the state dental board to issue a license, and to recover damages against the state dental board and other dentists, in all three separate and distinct causes of action, to each of which all of the defendants are naturally not parties. This is held to be an improper joinder of action and demurrers were held properly sustained by the King county court.

Robberies.—Dr. Anderson, Maroa, Ill., $12 worth of gold, June 4. Dr. A. D. De Lanna, Philadelphia, 1,000 false teeth valued at $724, June 9. Dr. J. K. Douglass, Sandusky, O., $260 in money gold crowns valued at $20, and a small clock safe, June 11. Three dentists of Iola, Kan., lost $40 worth of Dentists' supplies and tools. Dr. L. F. Pooler, Evanston, Ill., June 12, $90 worth of instruments and gold fillings. Dr. J. H. Bescore, Ida Grove, Ia., June 13, $75 worth of gold. Drs. Linton and Flora, Colorado Springs, Colo., June 15, $50 worth of gold. Dr. Clinton A. Downs, Colorado

Springs, Colo., $50 worth of gold. Dr. D. A. Johnston, Colorado City, June 9, $45 worth of gold. Dr. B. F. Grenchow, Kowanee, Ill., June 20, gold fillings valued at $15. Dr. J. G. Herron, Creston, Ia., June 23, $100 worth of gold. Dr. Henry K. Lathrop, Detroit, Mich., June 28, gold valued at $20. Dr. Fred Wilder, Dr. W. H McIllwain and Dr. O. Hawn, all of Louisville, Ky., reported losses of gold. Dr. Wm. T. Robinson, Freehold, N. J., $100 worth of teeth and gold. Dr. J. P. Stanley, Lewiston, Me., materials valued at $60. Dr. Fred Capron, Akron, O., gold plate worth $40. Dr. D. H. Henninger, Akron, O., gold worth $60.

Commencement.—University of Southern California held its commencement on May 28, and conferred degrees on twenty-two candidates.

New York Branch National Association of Dental Salesmen.—The New York Branch of the National Association of Dental Salesmen held their first annual banquet at the Hotel St. Denis, Broadway and Eleventh street, New York City, Thursday evening, June 6. The guests and speakers of the evening were the heads of the several dental houses in and about New York, namely: Mr. C. A. C. Kelly, of Buffalo, N. Y.; Mr. W. Sykes, of Ash & Sons; Mr. A. H. Bultman, of Consolidated Dental Mfg. Co.; Mr. H. A. Curtis, of Consolidated Dental Mfg. Co.; Mr. Slaight, of Parkington & Slaight; Mr. Rossig, of Eckley Dental Supply Co.; Mr. Herman, of the Dentists' Supply Co.; Dr. Clapp, of the Dentists' Supply Co.; Dr. Frame, of the Columbus Dental Mfg. Co.; Messrs. Osmun and Cook, of Newark, N. J.

It was moved and seconded that Mr. Fred J. Starr was to be sent to represent the New York branch at the National Association of Dental Salesmen's meeting to be held at Pittsburg in July. After a very harmonious and enjoyable evening, which everybody seemed to appreciate, the vine set before them, the feast came to a close, to be resumed at their next regular meeting in September.

Marriages.—Dr. James O'Brien, Ashland, Mass., and Miss Lillian Brooks, Ashland, June 5. Dr. John M. Beshoar, of Trinidad, Colo., and Miss Hazel Oxley, Trinidad, June 6. Dr. Cyril D. Duchios, Lenox, Mass., and Miss Katharine A. Morgan, Adams, Mass, June 11. Dr. Harry G. Longwell, West Philadelphia, Pa., and Miss Louise May Bowers, West Philadelphia, June 11. Dr. Lorenzen P. Ronne, of Syracuse, Neb., and Miss Mildred O. Pratt, Syracuse, June 11. Dr. Harold B. Lehner, East Jordan, Mich., and Miss Florence M. Rader, Grand Rapids, Mich., June 12. Dr. Edgar L. Major, of Greenfield, Mass., and Miss Katherine G. Ryan, Greenfield, June 19. Dr. John A. Clifford, Woonsocket, R. I., and Miss Kathleen G. Connolly, Sayles Hill, R. I., June 19; Dr. W. A. Wainright, Winchester, Ill., and Miss Bronna Lee Peak, Jacksonville, Ill., June 19. Dr. Michael Regan, Holyoke, Mass., and Miss Elizabeth F. McCarthy, Springfield, Mass., June 25. Mr. Jay Throckmorton, of Chillicothe, O., and Miss Carrie Minch, Chillicothe, April 13. Mr. Throckmorton is engaged in doing mechanical dental work. Dr. G. H. Tellman, Muskegon, Mich., and Miss Mae Workman, Chicago, Ill., June 26. Dr. Wm S. Rosenheim, Williamson, W. Va., and Miss Frances Harris, White Post, Ky., June 26. Dr. J. A. White, Birmingham, Ala., and Miss Caroline McKinney, formerly of Denver, Colo., June 30.

Pennsylvania State Dental Association.—At the annual meeting of this association held in Pittsburg, Pa., July 9, 10 and 11, the election of officers resulted as follows: President, Dr. P. K. Filbert, of Pottsville; first vice-president, Dr. C. B. Bratt, of Allegheny; second vice-president, Dr. W. D. DeLong, of Reading; recording secretary, Dr. L. M. Weaver, of Philadelphia; corresponding secretary, Dr. V. S. Jones, of Bethlehem; treasurer, Dr. W A. Spencer, of Carbondale. Executive council, Dr. C. C. Taggart, of Pittsburg; Dr. J. T. Lippincott, of Philadelphia, and Dr. E. J. Donnegan, of Scranton. Board of censors, Dr. C. C. Walker, of Williamsport; Dr. E. W. Bohn, of Reading; Dr. W. H. Fundenberg, of Pittsburg; Dr. C. C. Taggart, of Pittsburg, and Dr. J. G. Lane, of Philadelphia. Immediately following announcement of the tellers, Dr. J. T. Lippincott, the retiring president, turned the gavel over to Dr. Filbert, and the new officers assumed their duties. The association gave its approval to President Lippincott's recommendation for the prosecution of those engaged in illegal dental practice and decided upon voluntary contributions to defray expenses of such prosecutions. An appropriation of $500 was made for the prosecution of dentists not registered but practicing in the state and of persons violating the dental laws. It was decided to hold next year's meeting in Philadelphia. Four dentists for the state board of dental examiners were nominated and will be recommended to Governor Stuart, who, by custom, selects two of the four to fill vacancies. The nominees are Drs. H. W. Arthur. of Pittsburg; H. E. Roberts, of Philadelphia; C. C. Taggart, of Pittsburg, and G. L. Simpson, of Pittsburg.

WILLOUGHBY D. MILLER, A. B., PH. D., M. D., D. D. S.

BORN AUGUST 1, 1853; DIED JULY 27, 1907.

REGULAR CONTRIBUTIONS

PRACTICAL DENTAL THERAPEUTICS.*

By J. P. Buckley, Ph. G., D. D. S., Chicago, Illinois.

Before calling your attention to the pharmacy involved and the therapeutical application of the combinations of drugs which I have before you in the form of prescriptions, I desire to have this audience know that, in my opinion, there are three essentials upon which all successful therapeutics must stand. It matters not whether we are considering general therapeutics or whether the subject under discussion is special or dental therapeutics. First, we should know the pathological condition we are treating. This means that we must have a broad knowledge of general pathology as well as a knowledge of special or dental pathology. Secondly, we should know what drug or remedy, if applied or administered, will reach that particular condition and act the most favorably. This means that we must be familiar with pharmacology—a science which treats of the action of drugs and remedies upon the tissues, organs and functions of the body. The third essential is to have at hand, in a convenient and practical form, that drug or remedy which you know, if applied or administered, will reach and act favorably upon the pathological condition we are trying to correct. With these thoughts in our minds, I will now proceed to call your attention to a few drugs and medicines, and the combination of the same, which I have found useful in the practice of dentistry, and in doing so, as I have intimated, I want to emphasize the pharmacy involved in the combination of these drugs, as well as their dental application.

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*Lecture delivered before the Ohio State Dental Society, December, 1906.

The first prescription is used for sensitive dentine. In this connection I desire to say that I have been reading with a great deal of interest and profit that department in the Dentist's Magazine called "Humanitarian Dentistry." I may not agree, in fact, I do not agree with some of the means by which the ends are accomplished as published in this particular department; but I cannot speak too highly of the ideals which are being set and which they are earnestly striving to accomplish.

℞	Menthol	gr. xx
	Etheris	f℥ ss
	Chloroformi	f℥ jss—M

Sig.—Use as directed.

Now, this prescription, which contains menthol, ether and chloroform, you will find in some cases, especially large cavities where you have sensitive dentin, that you get excellent results from it. This is not a remedy that you can use with gratifying results in all cases. I wish I had a remedy that I could give to you which you could seal within the tooth, or apply by some means, which would so obtund the dentine that you could prepare your cavity painlessly, without having the remedy act deleteriously upon the pulp. I am optimistic enough to believe that some one in the dental profession in the next few years will be able to give us such a remedy. At present I know of none. I know dentin can be obtunded by means of cocaine and pressure. I mean a remedy here that can be used for the purpose of obtunding sensitive dentin without acting deleteriously upon the pulp. This remedy depends for its action upon the volatility of the liquids in the preparation, ether and chloroform. No solid can turn to a liquid, or liquid to a gas, without abstracting a certain amount of heat from the thing to which it is applied. That is a law in physics. If you will dip a pledget of cotton in this solution and apply it before you have the rubber dam adjusted, or after, and go on getting out your instruments ready to break down the enamel and prepare the cavity, by the time you have the instruments ready the heat of the body will be sufficient to have volatilized the ether and chloroform in the remedy, and as those are volatilized a certain amount of heat is abstracted from the tooth, and the menthol is therefore driven a considerable distance into the dentin.

Another excellent remedy used in the same manner is, the following:

℞	Zinci chloride	gr xx
	Alcoholis, chloroformi	aaf℥ss—M

Sig.—Use as directed.

Now, I don't know whether you have all discarded arsenic or not. I believe arsenic has served us too well and too long to throw it away altogether. I presume most of you are removing pulps by means of cocain and pressure; but if any of you are using arsenic because you haven't time to obtund the pulp and remove it by the newer method, or because of inaccessibility of the cavity, if you use arsenic for any purpose you will find the second prescription an excellent one for an arsenical paste.

℞	Arseni trioxidi	ʒj
	Cocainae hydrochloridi	gr. xx
	Menthol	gr. v
	Lanolini, qs to make a stiff paste.	

M. Sig.—Use the desired quantity.

Note—It is best to add lamp-black to color preparation.

The latest revision of the pharmacopoeia calls arsenic "arsenous trioxid." It has always spoken of the oxid, calling it arsenous acid. You will never see correctly written in a prescription, from now on, arsenous acid. You will find in this prescription arsenous trioxid, cocain hydrochlorid, menthol and lanolin. The action of this arsenical paste depends a great deal on the manner in which it is prepared. If you get in too much lanolin it will not act well. The idea you want to suggest to your pharmacist is this: The use of as small an amount of lanolin as possible to make a good paste out of the three powders. Menthol is a highly deliquescent substance, and there will be enough water in the menthol crystals to make almost a thin liquid out of the lanolin. That being true, you can make a paste out of a cocain hydrochlorid and the arsenous trioxid by using very little lanolin. Menthol is added to that prescription largely for pharmacal reasons. Cocain, as you know, is a local anesthetic. While menthol has local anesthetic properties, it is not added to the arsenical paste because of that fact, as I have explained.

The next prescription is one which I have been using for some time.

℞	Menthol	ʒ j
	Thymol	ʒ ij
	Phenolis	ʒiij—M

Sig.—Use as directed.

I am glad to say, too, that this same pharmacopoeia, which was revised in 1900, but the deliberations of which were only published last September, recognizes carbolic acid as phenol. It has never been an acid. It has only one property of an acid, and that is that with some metals it will form a carbolate. It is recognized now as phenol. This third prescription is menthol, thymol and phenol, added in the above proportions. This remedy, you will find, you can use as an anodyne in the roots of teeth from which you have removed the pulp, previous to filling the root, the pulp having been removed either by arsenic or cocain. I do not know whether it has been your experience or not, but it is mine, that I have had more pericementitis following the removal of pulps by cocain and pressure than I did when I used arsenic. There are reasons for that which I cannot take the time to go into now. But anyway, when you remove a pulp, either by means of arsenic or cocain, you have irritated, more or less, the tissue at the apical space, and you need an anodyne there. Phenol is not bad of itself, but much the best preparation is menthol, thymol and phenol. Thymol has been recognized by pharmacologists as having a peculiar, but favorable, action on animal tissue.

The constituents of this preparation are penetrating drugs, and care must be taken to use only a small quantity. If asepsis has been maintained in removing the pulp, all that is necessary is to place dry cotton in the canal and a small pledget dipped into this remedy into the pulp chamber.

I do not know what this audience has been filling the roots of teeth with, but gutta-percha has served me well as a root-canal filling; and if you use gutta-percha as a root-canal filling it is well to moisten the sides of the canal, after it has been desiccated, as well as you can, with eucalyptol, or some other preparation, which is slightly solvent for the gutta-percha, making the gutta-percha hug the side of the root, and go to place, without curling up and coming back. I am speaking of the gutta-percha point. Eucalyptol is a constituent of oil of eucalyptus, and if any of you have used oil of eucalyptus as bought from the ordinary pharmacy, you have had a case of pericementitis every time you filled a root, because there are constituents in the oil of eucalyptus that are irritating. Oil of eucalyptus has three constituents, the main one, eucalyptol. being the most volatile. The first one that distills is eucalyptol, because it is the most volatile constituent of the three. Eucalyptol is not nearly as irritating as the oil of eucalyptus; still, it is slightly irritating, and if you use too much in moistening the canal you will still have slight soreness following the filling of the root. You can modify the irritating action of the eucalyptol, and at the same time add disinfectant properties, and get the peculiar action of thymol by adding to the eucalyptol menthol and thymol.

℞	**Menthol**	gr. iij
	Thymol	gr. ij
	Eucalyptol	fʒ j—M

Sig.—Use as directed.

Thymol is added because of its peculiar property. The menthol is for the purpose of modifying and allaying the irritating qualities of eucalyptol. If you put into the eucalyptol too much of these substances, menthol and thymol, you will find that you have interfered with the solvent action of the eucalyptol on gutta-percha. I experimented some time with that preparation and found that I could put in three grains of one and two of the other without destroying the solvent action. I have in this prescription two grains of thymol, three grains of menthol and one fluid dram of eucalyptol. You can use that in cases where you moisten the root-canal.

You can modify that preparation and get another one, which is excellent in cases of weeping abscess. Sometimes after you cauterize a sinus and treat the root, you will have a weeping condition. You can check that secretion or weeping from the canal better by using another formula.

℞	**Thymol**	gr. x
	Eucalyptol	fʒ j—M

Sig.—As indicated.

Here we do not care anything about the solvent action of the eucalyptol, and an excellent prescription to use there is ten grains of thymol to a dram of eucalyptol, leaving out the menthol.

I now come to the discussion of remedies to be used in treating putrescent pulps and abscesses. Within a few years ago, remedies were selected for the purpose of treating putrescent pulps and abscesses solely and only because of the power or property those remedies possess for killing bacteria. Now, there are bacteria, lively ones, in a putrescent root-canal; but if you have studied the process of pulp decomposition, if you have studied the decomposition of any dead animal tissue, and then the changes through which that tissue goes as it putrifies or ferments, you will find that substances form in the process which are obnoxious, and which must be taken into consideration in the treatment of putrescent pulps and abscesses, as much as micro-organisms. Animal tissue is composed of proteids, carbo-hydrates and fats. As the carbohydrates ferment you have formed, among other things, gases. The main gas is carbon dioxid. Now, there isn't much of the carbo-hydrates in pulp tissue; so in treating a putrescent pulp, or in trying to get rid of the intermediate products resulting from decomposition, you do not need to consider much CO_2. But the main constituent of animal tissue is proteids; and as these proteids putrify and undergo decomposition, among the first things produced is the liberation of a gas, hydrogen sulphid H_2S. Other intermediate products, which form quite early in the putrefaction of proteid material are ptomains. Among the ptomains possible to be formed are two deadly poisons, putrescin and cadaverin. These substances are formed as a result of the action of some bacteria on the proteid material. These two substances are capable of setting up inflammation, suppuration and necrosis. As these nitrogenous bases or ptomains are further putrified you have, as a result of that further putrefaction, ammonia gas. Ammonia is irritating, and if you confine those gases, among which we find carbon dioxid, hydrogen sulphid and ammonia, you are going to have trouble. I believe these are the things that we find there. Now, you want to take into consideration the presence of these substances as well as the presence of micro-organisms. Instead of selecting drugs which possess only disinfectant properties, try to select drugs which will take care of, and act upon chemically, if possible, these other substances besides the micro-organisms.

I must call your attention to one thing further in connection with decomposition. There is not much fat in the original pulp tissue. But it doesn't make any difference whether there is any original fat in the pulp tissue or not. Besides the ptomains, the hydrogen sulphid and ammonia, which are the intermediate end and products of putrefaction of the proteids, we have also, as an end product, fats. All of you have removed from a pulp canal, time and again, a partially decomposed pulp, which, if you had cared to, and had placed it between your thumb and finger, you would have found it to be unctious; fatty in character.

Now, then, it is well to take into consideration the presence of fat in a putrescent root-canal in treating this condition, even though we cannot prove chemically that fat is an original constituent of the pulp tissue. In the journals, some years ago, formalin, a 40% solution of formaldehyd, was recommended. We got too many sore teeth, and then we used 20%. Then they got it down finally to a 2% solution, oftentimes still sore teeth. Again we saw in the journals the suggestion that you can use equal parts of creosote and formalin as a good remedy in the treatment of putrescent pulps. If any of you have tried to mix beechwood creosote and formalin you have found that they don't mix. They will not make a chemically clear solution (illustrating). Now, I can clear this solution by heating it, but as soon as it gets down to the normal temperature it will get milky again. I like everything clear and colorless. You can clear the solution, however, by adding alcohol to it. The alcohol is only used for the purpose of clearing up the solution. You can clear up the solution by taking ten minims of the alcohol to every dram of the formalin and creosote.

℞ Creosoti.
Formalini ....aa fʒ j
Alcoholis ....m xx—M
Sig.—Use as directed.

If it wasn't for the fats that resulted from the decomposition of that pulp, and other reasons which I will mention later on, that remedy would be good. You can put it into the pulp chamber, no matter how putrescent it is, and seal the cavity with cement. That is the beauty of it. Any remedy that you can seal absolutely at the first sitting is a good remedy, because you prevent the remedy from getting out into the mouth of the patient, and his tasting it as long as you are treating that tooth; and you prevent the saliva, laden with bacteria, from getting into the cavity of the tooth. You can do that by using this first remedy. But creosote will not act upon the fats to the same extent as some other agents. I will here call your attention to tri-cresol, now recognized by the pharmacopoeia as "cresol." Cresol and formalin, equal parts, a remedy suggested by myself, is a far better remedy to be used in the treatment of putrescent pulps and blind abscesses than is creosote, formalin and alcohol, for many reasons.

℞ **Cresolis,**
Formalini .... **aa f℥ j—M**
Sig.—Use as suggested.

You think they will not mix at first, but by simply shaking the container (illustrating), it will make a nice, clear solution, without the addition of alcohol or the use of heat. Phenol (carbolic acid) is a better disinfectant than creosote. Cresol has been proven to be three times as good a disinfectant as is phenol; so cresol is preferable to creosote as a disinfectant. Cresol acts to advantage upon the fats, which are an end-product of decomposition of the pulp, and as a result of that action of cresol upon the fats we have produced something analagous to lysol, a good disinfectant. Cresol modifies the irritating action of the formaldehyd, which is constantly generated from the solution. Now we have learned three or four reasons why cresol is better than creosote, and is better than phenol. Phenol and formalin will mix in all proportions, and is not a bad remedy. Cresol and formalin is better, as I have explained. That remedy can also be hermetically sealed in the tooth. Owing to lack of time, all I will say about the technic of using this remedy is this: You must have the pulp chamber exposed, or opened into freely enough to expose all the pulp canals, so that the remedy will act upon the contents therein. If you do not, the tooth will ache. If you freely expose the pulp chamber and seal in the remdy it will not ache

—if the canals are all exposed. That is one thing you must do, expose all the canals to the action of the remedy. Secondly, you must seal that in hermetically, without pressure. Now, it is difficult to seal in a large occlusal cavity, hermetically, any remedy without producing pressure, when stopping or gutta-percha is used, and if you succeed in doing that, and the patient forgets and bites on that side, the filling will give and you will have trouble. You can seal the remedy better with cement. I will simply say, the worse the odor you have in that root the better your remedy will act. You do not need to lose any sleep because you put in a cement filling and sealed the remedy over the putrescent canal. I want to tell you why. We have briefly—perhaps too briefly—figured out the end-products which result from the decomposition of the pulp. It is the gases which cause the trouble—I mean, as far as hermetically sealing the tooth is concerned. Your remedy must kill the gases, if I may put it that way. Now, in chemistry we all know that when ammonia and chlorin, two gases, come in contact with each other, they unite freely, and as a result a solid is produced. Now, here the gas that comes from our remedy is formaldehyd, CH_2O, and it comes in contact, first, we will say, with the ammonia, also a gas, in the putrescent canal.

First reaction—$6\ CH_2O + 4NH_3 = (CH_2)\ 6N_4 + 6\ H_2O$.

The two gases unite, forming urotropin, a solid; that is, not only a solid, but a substance used in medicine for the purpose of disinfecting the urinary tract. Perhaps it would not be bad to leave it in the tubuli of the tooth.

Second reaction—$2\ CH_2O + 2\ H_2S = 2\ CH_3OH + S_2$.

Your formaldehyd gas will also unite with H_2S.

One gas coming in contact with another, forming a liquid. In the first reaction you have a solid; in the second reaction a liquid; the solid formed as a result of the action of formaldehyd upon the ammonia; the liquid as a result of formaldehyd acting upon the H_2S. If you take care of the gases chemically, if you kill them, as it were, or if the gases unite to produce a solid and a liquid, you know you do not need to worry, when you hermetically seal this remedy in the roots of teeth containing putrescent material.

We will now consider another class of remedies:

℞	Acetanilidi	gr. viij
	(a) Syrupi simplex	f℥ ss
	Spiritus foumenti	f℥ ijss—M

Sig.—Take one-half at once and the remainder in one hour if required.

Here we have a remedy which you can use in cases of facial neuralgia, or in those cases where you have an incipient abscess; where you have used your local treatment, but until your local treatment is going to take care of those gases in the tooth you know it will ache for an hour, or five or six hours. You can control that pain by giving a general hypnotic. One of the best is acetanilid. Acetanilid, while it is a hypnotic, while it acts upon the central nervous system, is a heart depressor. But you can overcome its depressant and get its analgesic action if you combine a heart stimulant. Here we have whisky, a cardiac stimulant, to overcome the depressant effects of acetanilid. The pharmacopoeia has tried to introduce something to take the place of so many proprietary remedies, the formula of which we do not know. I do not believe we ought to use anything, especially internally, that we do not know the constituents of the mixture, and know the properties of the various constituents. To offset that rapid influx of proprietary remedies upon the practice of medicine, the pharmacopoeia has introduced a "compound powder of acetanilid".

Acetanilid	70 parts
Caffeine	10 parts
Sodium bicarbonate	20 parts

Caffeine is added here for the same purpose that the whisky is added in the above prescription, to overcome the depressant effect of the acetanilid.

In writing a prescription for any pharmaceutical preparation or official preparation, you never have to include in that prescription all of the constituents. All you have to do is to write a prescription for the official name, which is here "compound acetanilid powder".

℞	Pulvis acetanilidi comp	gr. xv
	Ft chartulae No. 2.	

Sig.—Take one at once and the other in an hour if not relieved.

In prescribing these general hypnotics many are prone to believe that we do not know enough about drugs and medicines to prescribe them, no matter whether the trouble is of dental origin or not, and we would be criticised, if we had a fatality, much more than a physician. To obviate, perhaps, the possibility of that criticism, in prescribing the hypnotic drugs, it is best, for dentists especially—it isn't a bad thing for physicians—not to prescribe for more than perhaps will be enough to produce the desired result. Do not prescribe for such an amount as would perhaps kill the patients if they were to take it all. Sometimes these patients having neuralgia will ignore your directions, and they will take one powder right after another, if they think they will get ultimately good results, without waiting for the action of the first powder. It takes some little time to get the effect. They will take one right after another, and the drug may have accumulated with a toxic result. Prescribe then for four doses, or perhaps no more than two.

℞	**Zinci iodidi**	**gr. xv**
	Aquae	**m. x**
	Iodi (crys.)	**gr. xxv**
	Glycerini q. s. ad	ʒ j—M

Sig.—Use where indicated.

Here is a remedy that you will get good results from in treating pyorrhea. That is zinc iodid (water, iodin and glycerine). This remedy was worked out for Dr. Talbot by C. N. S. Halberg, professor of pharmacy of the Illinois University. This remedy you will apply after having scaled the roots, especially in cases of flabby gums, where acid is not indicated. Apply in the pocket and over the septum of the gum. You will find that the gum will shrink and hug the neck of the tooth more readily than with most remedies. That is not quite Talbot's formula; it is practically the same. I have modified it some.

℞	**Phenolis.**	
	Acidi sulphurici	**aa ℥jj**
	Aquae	**f℥j ij**—M

Sig.—As directed.

Phenol-sulphonic acid, 50%. If you have an abscess where the pus has stood in contact with the root until it has been absorbed, or the end is rough, where you should not expect to cure the abscess by forcing through the sinus, phenol, you ought to cure that case by forcing phenol-sulphonic acid through. Where the pus has stood in contact with the root until you have quite a considerable area of pericemental membrane destroyed, and perhaps the end of the root, and a roughened edge of either process or root, there you have either to cut off the end of the root, or accomplish the same thing by the use of an acid. Several acids have been suggested, but one of the best acids to use under those circumstances, as well also as in a pyorrhea pocket, is phenol-sulphonic acid, made by taking equal parts of phenol and sulphuric acid; chemically pure phenol and chemically pure sulphuric acid. A great many tell you that you can make this preparation by taking phenol and sulphuric acid in equal parts, and then if you want to get the 50% (which is generally used—in pyorrhea pockets you ought not to use over 25%)—they tell you you can dilute that original phenol-sulphonic acid mixture with water. It cannot be done unless you again know something about pharmacy, or chemical laws and their application to practical pharmacy. You can mix, however, the phenol and sulphuric acid and make a nice, clear solution. Ordinary 95% phenol and sulphuric acid, chemically pure, will make a nice clear solution; taken in equal parts (illustrating). If you take the crystals of phenol and heat them in an evaporating dish, and add sulphuric acid, you will get phenol sulphonic acid in a clear solution. But if you want to make a 50% solution, or the 25%, you cannot get it by simply adding water, because you separate your phenol. Now, after I have added the phenol and sulphuric acid, granting that I had a clear solution, and then the water, I can not clear the solution by heating. But you can overcome that if you will make this preparation in the following manner, and that is what I want to illustrate. If you will take 95% phenol and heat it nearly to boiling, then while hot add as much sulphuric acid as you have taken of the phenol, then to that mixture, while still hot, you add your 50% of water, there you have made a 50% solution of phenol sulphonic acid; and you have got a good, clear solution without precipitating or reprecipitating the phenol.

When you apply phenol sulphonic acid to a root canal for the purpose of cauterizing a fistulous tract, and at the same time smoothing up the rough edges of the processes or end of the root, you must not apply it to the canal on cotton. It will make a mush, and be difficult to handle. You want to apply this remedy to the canal on threads of asbestos, or silk. With your unvulcanized red rubber you make a plunger, having the alcohol ready to cauterize the mouth of the fistula as it passes through, or having a little blotting paper with an opening over the mouth of fistula, dipped in vaseline, letting the oil neutralize the acid as it passes through.

The next prescription is a good mouth-wash:

R	Sodii bicarbonatis.	
	Sodii boratis	aa ʒ j
	Zinci chloridi	gr. vj
	Thymol	
	Menthol	aa gr. j
	Alcoholis	ʒ ij
	Glycerini	℥ iv
	Aquae cinnamoni	q. s. ad f.oj—M

Sig.—Use as directed.

If you want an astringent mouth-wash you will find that an excellent one, one that your patients will like and one you will like.

I want to caution you against having your patients use mouth-washes too frequently, when they do not need them. It has been found that the constant use of some of these mouth-washes on the market interferes for hours with the action of pepsin on the starchy foods. So this matter of having patients use antiseptic mouth-washes daily, when a saline solution, or simply water, will accomplish the same result, is wrong. If you want to hold in abeyance, however, the micro-organisms in the mouth, you must use some mouth-wash. You can use this one with excellent results. Now, the pharmacopoeia here, like in the case of so many of these hypnotic headache preparations, to overcome the gradual influx of mouth-washes, has introduced in the last edition an official mouth-wash, which is shown over here, U. S. P. formula:

Boric acid	20 gm.
Benzoic acid	1 gm.
Thymol	1 gm.
Eucalyptol	0.25 cc.
Oil peppermint	0.50 cc.
Oil of gaultheria	0.25 cc.

Oil of thyme........................0.10 cc.
Alcohol ....250.00 cc
Water, to make...................1,000.00 cc.

When you want to write for a mouth-wash all you need to do—instead of acting like parrots, instead of signing youi name on a line with "D. D. S." at the end, on a so-called blank prescription for the proprietary mouth-washes—instead of doing that you can let the public know that you know enough about drugs and medicines to write an intelligent prescription for a mouth-wash that is a counterpart of, or better than any proprietary mouth-wash on the market today. You can write for that solution. You do not need to write "boric acid, thymol, benzoic acid," etc.—you do not need to write them all out. You can simply write the official name:

℞ **Liquoris antisepticus ....f℥ viij**
Sig.—Dilute with one-half water and thoroughly rinse mouth as directed.

That shows much more intelligence on your part than to sign your name to these blanks, which are so freely furnished for the miscellaneous use of these proprietary mouth-washes You do not even need to remember the exact constituents of that mouth-wash. You can easily remember, however, that this mouth-wash contains 2% of boric acid, one-tenth per cent. of thymol and benzoic acid; 25% of alcohol, and other aromatics and antiseptics in an aqueous solution.

℞ **Orthoform.**
Europhen ....aa ʒ j
Liquidi petrolati q. s. to make a paste. —M
Sig.—As directed.

The above formula is one from which you will get much benefit, especially country dentists, where you have to do a great deal of extracting, in allaying the pain after the extraction; if you have separated the process, or if the process is attached to the cementum of the root; or if you have had to go down and expose the process more or less; in any of those conditions from which you have severe pain you can stop that pain almost like magic by its use. Now, it is claimed by some that orthoform is a disinfectant. It is not a good disinfectant, but is an excellent local anesthetic. You can prolong the anesthetic effect if you add europhen. Europhen is a substitute for iodoform. It is an insoluble product which, when it comes in contact with water, gradually gives off iodine. Combining these two, and adding to that liquid vaseline, it makes an oily paste. After drying the exposed part, apply the oleaginous paste, and you can control the pain. You do not need to be afraid; if the patient lives in the country and cannot come in handily, and you think the pain will not stop by the time the anesthetic effect has passed away, you can give them some of the paste and let them apply it themselves. It must be applied to an abraded surface.

I have taken up a great deal of your time, and I appreciate fully the interest that you have shown this afternoon. I will feel well repaid if in my rambling remarks here I have succeeded in convincing this audience that what we need in dentistry today more than the rapid influx of these proprietary remedies, the constituents of which we do not know, is a broader knowledge of pathology and a broader knowledge of drugs and medicines. I thank you.

DISCUSSION.

Dr. J. S. Cassidy, Covington, Ky.: This is a very instructive paper. Dr. Buckley's remarks are above and beyond criticism. His fitness for the work of preparing such a paper is attested by the fact of his having had a training as a pharmacist before he joined our profession. If he should ever go back to the practice of pharmacy. he would be the better pharmacist for having practiced dentistry. Our use of remedies is necessarily somewhat empirical, at best, for the reason that, while our medicines may be definite, the diseases we attempt to treat are constantly varying in their nature and manifestation. A disease may be one thing today and an entirely different thing tomorrow. So that it is conceivable that any one of us attempting to apply the remedies recommended by the doctor might not succeed with them as he has done, owing to indefinite knowledge of conditions existing in root canals, on which account we might even condemn his methods and remedies; I think, however, that his conclusions are in the main correct. I am glad he insists that all dentists should have at least a smattering of pharmaceutical knowledge, so as to be able to prescribe proper remedies, instead of relying on empirical remedies.

I noticed that throughout his paper Dr. Buckley did not mention the name carbolic acid but once; he used the name phenol twenty or thirty times. A good many old boys, and young ones as well, do not know what phenol is! I say it is high time to relegate the name carbolic acid to the rear, forevermore; it is old as the hills, obsolete. Not all druggists, even, are up to the times, when it comes to pharmacal nomenclature. I asked a druggist recently for some arsenious acid. He appeared mystified and said he had none. Then I asked for arsenic acid, and he understood.

I was the first man in the wide, wide world to recommend formaldehyd to the dental profession; that was in 1894, in the Kentucky State Association, while the subject of putrefaction was under discussion. Later, in the National Dental Association, I called attention to the fact that formaldehyd acts on the nitrogenous material present in decomposition.

Dr. L. L. Barber, Toledo, O.: I have for many months used several of the combinations Dr. Buckley recommends, and have found them greatly superior to the such old-time remedies as iodine and carbolic acid, on which so many dentists rely in treatment. There is one good thing about those remedies, and that is you can always tell a tooth that has been subjected to treatment with them. (Laughter).

The dental profession needs better hand-books on chemistry and therapeutics than are extant. Years ago Dr. Cassidy called attention to this need. At present we have no recourse but to general works on therapeutics not specialized for dentists' use. Dr. Cassidy intimated that he regretted he had not known in advance what Dr. Buckley was to say, so that he might better prepare for discussing his paper. My own regret is that I did not know, so as to dodge in time.

Dr. S. D. Ruggles, Portsmouth, O.: Ever since I heard Dr. Buckley's talk at the World's Fair Dental Congress in St. Louis, I have been using formalin and cresol. I have even tried the combination on myself. When I first experimented with the new remedy, I used to seal it up in the cavity with a loosely-applied stopping, through apprehension of its generating gas and causing trouble. Now I seal it with cement. The very first case in which I used the remedy was one in which there was a putrescent pulp. The patient returned after a time complaining of pain. I removed the cement, opening the cavity. Am now convinced that was a mistake. If I had dismissed the patient without doing anything, the pain would presently have subsided.

In one case, however, I had removed the cement, and yet the pain continued persistently. I tried various remedies to no purpose. And yet in many instances I have had splendid success. In the great majority of cases there is no trouble.

I had a great deal of pain myself when I tried the new application in my own mouth. In the end it proved there was a living nerve in a buccal root, although the palatine branch of the pulp was dead.

Dr. M. H. Fletcher, Cincinnati, O.: I recall an old practitioner of dentistry saying he could get along in the practice of dentistry a lifetime if he had three things: a barrel each of carbolic acid and arsenic, and several barrels of amalgam! The use of arsenic, or arsenious chloride has been most efficient in my hands for twenty-five years. I may say that I never treat a pulpless tooth without using arsenic. It has wonderful efficiency.

Another matter I will mention: In the treatment of the apical space, where there is absorption of the root, the tolerance of a foreign body there is remarkable. I should hesitate to inject anything to clear up the rough surfaces there. Nature will, in a large majority of cases, attend to that. In numerous cases of this particular description I treat by injecting chloro-percha, or gutta-percha, dissolved in chloroform, through the apex into the space. That will be tolerated by the parts. There will be no future irritation.

Dr. W. T. Jackman, Cleveland, O.: Dr. Buckley spoke in his lecture of the fact that throughout the dentine, overlying a nearly exposed pulp, are swarming bacteria and ptomains. These ptomains may be, and sometimes are, forced through the apex of a tooth, through the pulp itself, when we apply pressure anesthesia. By exerting too high pressure you are liable to have this happen. Pulps are often infected—healthy pulps, I mean—by the very operation of applying pressure anesthesia. Perfectly sterilized broaches and other instruments are required here, as in all cases of pulp approach.

As for danger of bad after-effects through the injection of cocaine, if the strength of the solution does not exceed one per cent. no evil need be feared.

Dr. J. S. Buckley, Chicago, Ill.: I regret that the hour is so late that I cannot answer the various questions that have been asked by the gentlemen who have taken part in the discussion. I, however, must take time to reply to Dr. Acker's criticisms. He has evidently been reading papers by me which had been previously published, and has discussed these rather than my talk here this afternoon. It appears that he has associated himself with friends who are perhaps somewhat familiar with chemistry, but who do not know dentistry. There is an old supplication which says, "Lord deliver me from the hands of my friends; I can take care of my enemies!" You will find that our friends will get us into much more trouble than our enemies ever will.

It does not make any difference whether these are Dr. Acker's statements or are the opinions of his friends reflected to the society through the doctor's discussion. I expect to reply to them, nevertheless.

The gentleman has purported to quote from Vaughn & Novy's work on animal alkaloids, to the effect that formaldehyd gas will not act on ptomains. He also seems to question the existence of such substances as poisonous ptomains. Now, if he will take occasion to read further in this same work, he will find that, while putrescin and cadàverin were at first regarded as physiologically inactive, both these bases have been proved by Scheurlin, Grawitz, and others, to be highly poisonous and capable of producing inflammation and suppuration. These gentlemen, also, go further to say that necrosis can result from these poisonous bases. It is difficult to say, definitely, that these two poisonous substances exist as such in a putrescent root-canal. It must be appreciated by anyone who has given this subject any thought that there are many difficulties presenting themselves to the student who attempts to study this complicated process from a chemical point of view. We cannot remove from the canal and tubular structure of the dentine, these intermediate and end-products which result from pulp decomposition, in sufficient quantities to make a definite chemical test, but are forced to study the process of animal decomposition in general, and then arrive by analogy at our conclusions as to the probable substances formed in the decomposition of the pulp tissue, which is analogous, or nearly so, insofar as its chemical composition is concerned, to all other animal tissue.

The statement which I made casually here this afternoon, and which has appeared in my published articles, that hydrogen sulphid is neutralized or is acted upon chemically by formaldehyd, is questioned, as well as has been the action of formaldehyd on poisonous ptomains. Dr. Cassidy, who is recognized as one of your best dental chemists, has just explained in his discussion here this afternoon, in a rational manner, how it is possible for methyl alcohol to result from the action of formaldehyd on hydrogen sulphid. If further evidence seems necessary to convince this gentleman or his friends that my conclusions were not "the cherished but idle fancies of a feverish dream," I will cite him to Stevens' Modern Materia Medica and Therapeutics, page 398, which says, "Formaldehyd unites readily with hydrogen sulphid, mercaptan, ammonia, and fetid ammonia bases, to form inodorous compounds." The gentleman has asked why I did not bring with me a solution of hydrogen sulphid and demonstrate to this audience whether or not it could be neutralized by a solution of formaldehyd. I did not suppose my honesty would be questioned; I did not suppose it would be necessary to bring here and illustrate an experiment which was published in the transactions of the Fourth International Dental Congress held at St. Louis three years ago. The gentleman has admitted that he has not used this so-called rational treatment, for the reason that he has a method whereby equally as good, if not better, results can be obtained. If he will present that method to the profession, which he has not done here this afternoon, and which I have never seen published, and it proves to be a more practical method of treating these conditions than that which I have suggested, I will gladly discard this method of treatment and adopt that referred to by him.

Now, ladies and gentlemen, none of these prescriptions which I have presented to you this afternoon are for sale. Many of them are original with me; others are not. I have presented them to you, and if you find them to be practical and valuable in your practice, you can use them, otherwise they may be discarded.

In reply to a question of Dr. Ruggles, as to the method of procedure in those cases where the pulp in one canal of a multi-rooted tooth is dead, and in another one or two canals is alive, I will say that this method of treatment in such cases is a godsend. It should be remembered that the case cited by him is an exceptional one, and that it is difficult to know whether or not this condition exists until perhaps we have had the experience he had when he sealed the remedy in the tooth. But after we know the condition, then our method of procedure is simple, and the results will be certain. A small pledget of cotton dipped in the remedy can be gently placed over the openings of the two buccal canals which contain putrescent material, and a thin, quick-setting cement flowed over the cotton. This remedy will neutralize the intermediate and end-products which are in those canals. After the cement has set, then the live pulp in the large lingual canal can be removed by either the anesthetization or the devitalizing method, as is deemed best by the operator at the time. Formerly these were difficult cases to treat, but with this remedy, which can be hermetically sealed in the tooth, the procedure is materially simplified.

Alcohol will dilute the solution of formaldehyd and neutralize the cresol should any of the remedy get on the gum. This is a caustic remedy, and care should always be taken to prevent it getting upon the soft tissues of the mouth. This is one of the reasons for always hermetically sealing the remedy within the tooth.

Oil of cloves, or eugenol, placed in the aching tooth, and volatilized with hot air should have stopped the pain referred to by Dr. Ruggles, almost instantly.

I want again to thank this audience for the attention they have given, and for the interest they have shown in the subject. (Applause).

SOME ADVANCES MADE IN DENTISTRY IN THE PAST FIFTY YEARS.*

By C. N. Johnson, M. A., L. D. S., D. D. S., Chicago, Ill.

Since the organization of this society, fifty years ago, dentistry has materially changed in many of its phases. It is not my purpose to attempt to deal with all the variations in methods of practice during that time for two reasons, one that I am incompetent to do this through lack of personal observation extending so far back, being several years the junior of this society, and the other because of the fact that history has demonstrated the insignificance of many of the innovations which at the time seemed important. I shall therefore refer only to a few of the developments during that period which to me appear of greatest moment to the profession.

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*Read at the 50th anniversary of the Northern Ohio Dental Association, June, 1907.

INTRODUCTION OF THE RUBBER DAM.

First was the introduction of the rubber dam in the early 60's. When this society was organized, operators were trying to keep cavities dry by stuffing the mouth with napkins, and laboring under all the difficulties incident to such an uncertain and disagreeable method of practice. While operators in those days became very expert in the manipulation of napkins in the mouth yet it was simply impossible in all cases to control the saliva and keep the teeth dry. The rubber dam has done more to revolutionize dentistry than any other one advance in the last fifty years. Aside from the possibility it introduced for the insertion of cohesive gold into large cavities calling for contour restorations, it rendered possible the practice of aseptic dentistry in all those cases where infection is an important factor to be reckoned with. It is true that the septic problem was not recognized at the time the rubber dam was introduced, but the moment it was recognized the dam proved the most effective instrumentality in equipping the dentist to take advantage of the knowledge newly gained. What would we do today with many of our pulpless teeth, were it not for the rubber dam? We control disease more certainly and lessen the number of our treatments by half through the possibility it presents of keeping out fresh infection, and I cannot pass without expressing the wish that the virtue of this agency in the treatment of pulpless cases were more generally recognized and practiced by the profession. Today we save thousands upon thousands of natural teeth, and render them useful and ornamental organs of the human economy which fifty years ago would summarily have been consigned to the forceps, but these thousands might be increased many fold if the profession took full advantage of the opportunites presented them by the protection afforded by the use of the rubber dam, and the knowledge we possess of the value of aseptic treatment.

EMPIRICAL USE OF DRUGS.

And this knowledge is largely a development of the last half century. What was known definitely by the founders of this society about the virulence of septic matter when forced through the apex, or what did they know of the cause of the terrible upheavals which sometimes occured in the apical space? If men used drugs in those days, they used them for the most part empirically and without any clear idea of how they accomplished a result. There is some empiricism in the profession yet, but we certainly know more of the phenomena of infection and the specific action of drugs than was known fifty years ago. And this knowledge if properly applied may be made of inestimable value to the community at large, through a better control of disease in the oral cavity.

USE OF COHESIVE GOLD.

Another development of the past fifty years is the use of cohesive gold in restoring the original form of the tooth by filling where an appreciable portion of the crown has been involved in caries. It must have been about the time of the organization of this society when the cohesive property of gold foil was discovered, but it was at first thought to be a detriment and was not utilized till later. The idea of restoring the contour of a tooth by filling as we do now was not thought of at that time, and in fact it was long after the use of cohesive gold became general that the real philosophy of reproducing original forms in decayed teeth became apparent. In the early days the only thought was to stop decay and an operation which accomplished this was considered a success. Now we are not content with this achievement but we must also render the tooth comfortable for mastication through a recognition of the significance of the contact points on proximal surfaces and the proper form and function of the interproximal spaces.

And this advance I deem to be one of the very greatest importance. The ability to contour fillings by the use of cohesive gold, and the consequent comfort in mastication, has popularized operative dentistry among the people more than is generally realized, and this is becoming more and more important as the nervous tension of our patients is being raised so that the lodgment of food in improperly formed interproximal spaces is proving a constantly increasing source of irritation.

ETIOLOGY OF DENTAL CARIES.

The etiology of dental caries is another subject upon which much light has been shed in the last half century There had been sonsiderable conjecture in the minds of the profession as to the cause of this disease and various theories had been advanced, many of which were wide of the mark. Some thought that the cause was inherent in the tooth structure itself while others contended that the general condition of the fluids of the mouth had all to do with it. But there were others who were more nearly on the right track though no one was conversant with the real cause. As far back as 1828, Robertson intimated that the carious process was the result of some influence acting directly on the enamel at the precise points where cavities were to occur, and this is perfectly in accordance with facts; but his conception as to what it was that acted was very vague and was summed up in the idea that it was due to "decomposition." Long after 1857 Miller showed that caries was due to an acid formed as the result of micro-organic growth, and demonstrated this by experimental work. This fact was therefore established well within the life of this society, and while there are yet many factors in the phenomena of caries which we do not well understand, this demonstration of Miller placed the question upon a scientific basis and gave us a logical hypothesis to work from.

FURTHER LIGHT NEEDED.

What we particularly need further light upon, in connection with this disease, is a better understanding of the conditions which influence the progress or retardation of caries. We need to know why some mouths are practically immune from this affection while others are peculiarly susceptible to it, and also to know why it is that in the same mouth there are periods when the disease progresses very rapidly and others when it is apparently in almost total abeyance. It has seemed difficult to get the profession generally to recognize the clinical manifestations of these varying conditions, though they are unmistakably evident to a close observer; and up to this time it has seemed equally difficult for those who have observed them to suggest any plausible theory to account for them. There must be certain unrecognized elements in the mouth tending to influence the conditions of immunity and susceptibility, and it remains for future scientific investigations to determine what they are and point them out to the profession.

A BETTER UNDERSTANDING OF CONDITIONS WHICH CONTROL DISEASE.

The next great advance in dentistry should come through a better understanding of the conditions which control disease, and following this we may hope to discover some means of controlling the conditions and thereby prevent the disease. Let us hope that well within the next fifty years this may be brought about. In fact, at the present time Dr. F. W. Low, of Buffalo, N. Y., is working along a line which promises to throw light on this subject. He has found that in cases of typical susceptibility there is an excess of ammonium salts and an absence of sulpho-cyanates, while in immune cases there is an excess of sulpho-cyanates and a reduced amount of ammonium salts. From this it would seem as if the significant factor in dental caries was connected with the sulpho-cyanates, and a further development of this investigation will be watched with great interest.

AFFECTIONS OF THE PERIDENTAL MEMBRANE.

Another affection of the mouth which was practically unrecognized half a century ago relates to the disease which causes the loss of so many teeth through destruction of the peridental membrane and surrounding tissues. The term "pyorrhea alveolaris" was not invented fifty years ago, and while there are those in the profession who claim that it never should have been invented at all yet it has evidently come to stay as it represents in the mind of the profession a condition which results in the loss of so many teeth annually. The etiology of this disease or group of diseases is not so well understood as that of caries, there being a great diversity of opinion in the profession as to the cause, and while this is in some sense a serious reflection on the profession yet we are recognizing the disease and treating it more effectually than did the practitioners of fifty years ago. Whether or not it is more prevalent today than then we are at least more keenly alive to its depredations, and our literature is filled with suggestions for its control.

CROWN AND BRIDGE-WORK.

The past fifty years has witnessed the introduction of crown and bridge-work, a method of practice which has resulted in prolonging the usefulness of teeth and roots long after the natural crowns have been destroyed by caries. If any artificial crowns were used in 1857, they were of the most primitive sort and were fastened to the roots with wooden pegs. While they were often better than none they were not to be compared with the crowns of modern dentistry either in ingenuity of workmanship or length of service. In fact the ingenuity displayed in the manufacture of crowns today has made it so fascinating to many operators that they have frequently resorted to crown-work and have cut off thousands of teeth that might better have been filled.

Bridge-work has opened up a fruitful field of effort in supplying lost teeth in many instances where otherwise an artificial plate would have been necessary. The possibility of dispensing with a plate is a great boon to the patient and it has sometimes tempted operators to go to an extreme in the use of bridge-work and employ it in cases where good judgment would dictate against it. All good things are subject to abuse by enthusiasts, but this should not argue against their legitimate use, and when the aggregate serviceability of crown and bridge-work is considered it will be found that its introduction into the profession marked a very important advance. If we wish to realize just how great this advance has been let us imagine ourselves in the position of the organizers of this society and have one of our lady patients come in with the crown of a frail lateral incisor broken off even with the gum. In those days there was little to be done with such a case except to insert a plate, while today the transformation wrought by the skillful dentist in a few hours in a mouth marred like this is well nigh miraculous. I sometimes think that people get so in the habit of having these transformations made for them that they lose sight of the skill behind the operation and take it too much as a matter of course. They never stop to consider the painstaking effort and inventive genius which has been necessary to develop the methods of modern dentistry to where they are, and this is not only true of the public but often true of the young practitioner who has come upon the field since these methods were well established and systematized. Place the recent graduate of today back in the position of the men of fifty years ago with the same equipment and facilities for work and the same teaching, so far as the technique of operations is concerned, and he would cut a sorry figure in trying to serve his patients. The rising generations do not sufficiently pay tribute to the efforts of the pioneers, nor do they realize to its full extent the amount of labor and application it has taken to perfect the methods they are using today. But this is after all only natural and in line with the tendency of every age to accept the knowledge gained through the achievements of the past as its rightful heritage.

PRINCIPLES OF CAVITY PREPARATION.

Another advance made in the past fifty years is a better understanding of the principles involved in cavity preparation. This subject has been taken out of chaos and systematized in such a way as to constitute almost a new method of practice. The establishment of cavity outlines at certain points to prevent the recurrence of decay around fillings, the formation of cavity walls to secure the strongest possible mechanical anchorage of the filling with the least weakening of the tooth structure—all of this has been accomplished to a degree which has made it possible for an operator to serve his patients to better advantage and with a more certain promise of success.

INLAY WORK.

One of the most recent developments emanating from the ingenuity of dentists is the introduction of inlay work. This has brought about quite a revolution in many offices in the methods to be employed for saving decayed teeth and while its definite status as a permanent method of practice has not yet been sufficiently established, yet it has demonstrated beyond doubt that within certain limitations it is capable of great service to our patients. It has become so much a part of modern practice that no one can afford to ignore it, and yet with this as with every other innovation there are enthusiasts who go so far in its advocacy and its use as to jeopardize its reputation by their utter lack of conservatism. Inlay work has demonstrated possibilities that cannot be ignored, and if used under its indications and with discriminating judgment it fills a niche in our armamentarium for the preservation of the natural teeth which has never been so satisfactorily filled before by any method at our command. All honor to the men in the profession who have labored hard to place this work on an established basis. While there is still room for perfecting the technique and simplifying the methods, the fundamental idea of inlay work has been so thoroughly engrafted as to make it an important factor in our every-day practice.

ORTHODONTIA.

Another department of our science which has grown up in fifty years is that of orthodontia. And what a marvelous development it has been. Today the specialist in this field takes the child with mouth and face deformed, grotesque and even hideous, and by the magic of his art transforms it into a thing of symmetry and beauty. And the wonder of it is that so much transformation can be made with so little discomfort. I doff my hat in respectful admiration of the men who have made this miracle possible, and I am proud to be associated with a profession which has such men in it.

ORAL SURGERY.

Then again the field of oral surgery has been practically revolutionized, and operations are successfully performed today which were undreamed of in 1857. When surgery of the mouth was attempted in those days it was accomplished with unsightly scars left by opening from the outside through the lips or cheeks, while now the same operations are performed without leaving any external evidence by approaching the work through the mouth. One of the greatest advances in oral surgery has been the development of cleft palate operations, the perfection of results in many of which are well calculated to challenge the admiration of mankind.

Another recent development of surgery of the mouth is the preservation of the normal contour of the face after removal of extensive sections of the jaws by injecting warm paraffin into the soft tissues, moulding it to the proper form, and allowing it to harden. I have witnessed one case where half the lower jaw had been removed, and yet in conversation with the patient I was unable to detect any abnormality.

DENTAL LITERATURE.

In the past fifty years there has been a wonderful development in dental literature, both periodical and in the publication of new books. In 1857 all the dental journals of the world could probably have been numbered upon the fingers of one hand, while today it is impossible to make an accurate estimate of them, those in this country alone numbering more than twenty of regular monthly appearance. The dental libraries of those days while entitled to our respect as representing the worthy efforts of a struggling profession could not be compared with our present libraries in either the number of books or in the character of their contents. In fact, one of the most hopeful signs of the times is the frequent issuance of new books devoted solely to dentistry—and books, be it said, which for excellence of the matter they contain, both illustrative and textual, may well be compared with the best literature of any profession.

DENTAL EDUCATION.

In keeping with the spread of dental literature has been a decided advance in dental education. I am not aware of the number of colleges in existence in 1857, but there could not have been more than three or four, and their facilities for teaching dentistry would have been laughed to scorn by the student of today. It might be considered unbecoming in one who has been so closely associated with this work throughout nearly the whole of his professional life to speak of the achievements in this line of effort, but the records stand for themselves and require little amplification. In comparison with the educational systems of other professions, it is only necessary to quote the statement of a very prominent member of the medical profession, one who is a college professor and who stands high in medical educational circles. He said, in discussing the methods of teaching in medical and dental colleges, that it was manifestly evident that in the dental colleges the student was better equipped at graduation to go out and serve the people creditably than was the medical graduate to practice medicine. If this is true, and we believe it is, then the only lesson from it should be to double our efforts in this direction so that we may not only maintain our present record, but attain to higher and still higher ideals in a field of labor which is really at the very foundation of all that we may expect of progress in the future.

But with all of the advances to which I have thus briefly called attention there is no one to my mind more encouraging or more potent for good than the change in professional spirit which has come over dentisty in the days since this society became an organized body. It is true that here and there the profession showed at that time a laudable disposition to spread knowledge among its members. The founders of the Northern Ohio Dental Association were men of that type, and they deserve all the greater honor because of the rarity of such a sentiment. In those days men were for the most part secretive with their methods of practice; office doors were kept guarded, and a spirit of selfishness prevailed which was in striking contrast to the liberality of the present day. Now the members of the profession vie with each other in their efforts to impart knowledge to others, and whenever any new idea is evolved it is at once published far and wide with the utmost liberality. This is one of the most hopeful signs of the times, and so long as dentistry shall have a name there can be no loftier mission among its members than to foster the sentiment of a universal brotherhood of man so well typified at the present time by the leading lights of the profession.

DISCUSSION.

Dr. H. L. Ambler, Cleveland, Ohio: Dental science, like all other branches of science, is not bound to a single country or nation. The results of its research are for the prevention and cure of diseases and thus benefit the whole of mankind, and this is reason enough why we should be here today for the purpose of celebrating our golden anniversary. And as we read to you only a **partial** list of what the profession had fifty years ago, you can contrast the items, in your own mind with similar ones which the profession has today.

Franklin S. Slosson was the first president of this association.

Questions for debate in 1857: "What are the causes of decay of the teeth?" "What is the best treatment for an exposed pulp?" "What are the best means of preventing and arresting decay and preserving the teeth?" "What is the best treatment for an alveolar abscess?" "Is crystal gold superior to gold foil for filling teeth?" "Is the porcelain mode of inserting artifical teeth superior to other modes?"

Declarations: "Caries is not a distinct disease, but is the result of chemical action, and its phenomena vary with the character of the agent producing it." "The proper regulation of the teeth and cleanliness will largely prevent caries." "It is derogatory to the standing of a dentist to charge less than one dollar for the smallest gold filling in northern Ohio, exclusive of Cleveland and Toledo, where the fee should be one dollar and a half." "It is very important that we have a dental depot established in Cleveland."

In 1857 there were three dental colleges: Baltimore (1840), Dean P. H. Austin; Ohio (1845), Dean J. Taft, and Pennsylvania (1855), Dean Elisha Townsend.

In 1857 the Baltimore college had 20 graduates and 25 juniors. Ohio college had 5 graduates and 18 juniors. Pennsylvania college had 13 graduates and 20 juniors. Thus all of them together had about one hundred students, and the number of dentists in the U. S. was something more than 4,000; that would make about one college to every 1,333 dentists. Beginning with 1840, the requirements for graduation, were one year at college and four years of practice; two years of four months; three years of five months; three years of six months and three years of nine months.

The establishment of dental journals was, viz.: American Journal of Dental Science (1839), at three dollars per year; but that was soon changed to five dollars. Stockton's Dental Intelligencer (about 1843). The Dental Register of the West (1847), with James Taylor as editor; in 1857 the editorship passed to J. Taft and G. Watt. Dental Monitor (1855), J. G. Ambler, editor. The Dental News Letter (1857). The American Dental Review (1857). The Dental Reporter. The Dental Obturator (1857). The Dental Enterprise (1857). Nine journals—large and small. From first to last, at home and abroad, the journals number about 170. The British Journal of Dental Science and Odontological Society of London were established in 1856. The Quarterly Journal of Dental Science, London, 1857.

The formation of societies, so far as I am aware, viz.: American Society of Dental Surgeons (1840), Virginia Society (1842), Mississippi Valley Dental Association (1844), Pennsylvania Association of Dental Surgeons (1845), Michigan Dental Association (1846), Society of Dental Surgeons of the State of New York (1847), American Dental Convention (1855), Northern Ohio Dental Association (1857). Western Dental Society (1857), meets in Chicago, St. Louis, and Quincy, Ill. (I think it went out of existence years ago); St. Louis Dental Society (about 1857); Pennsylvania Central Society of Dental Surgeons (1857), extinct, I think; Cincinnati Association of Dental Surgeons (about 1857). A few of the things we had in 1857: Harris' Principles and Practice of Dental Surgery; Harris' Dental Dictionary; Arthur's Method of Filling Teeth with Cohesive Gold Foil; Magitot's Dental Anomalies; Owen on the Skeleton and Teeth; Owen's Odontography; Tome's Dental Physiology and Surgery, and many others; nitrous oxid (1844), ether (1846), chloroform (1847), hot-air syringe, invented by J. Taft; Townsend's amalgam, Hill's stopping, from No. 2 up to No. 50; gold foil, cheoplasty, now called cast metal work where Watt and William's, Weston's, White's and other metals are used in casting prosthetic cases. The jack-screw for regulating silver nitrate, applied to dentin to relieve inflammation. Cohesive gold foil first made by Leslie of Cincinnati, O., in 1839.

At the American Dental Convention, in 1857, this resolution was passed: Resolved that the convention establish a fund for the promotion of dental science, with special reference to the employment of some competent person to conduct experiments, physiological, pathological, chemical and hygienic, as connected with dental science.

In 1870, the American Dental Association passed, viz.: Resolved that the thanks of the Association be and are hereby tendered to Dr. S. C. Barnum, of New York City, for the invention, perfection, introduction and donation of the "rubber dam" to the dental profession about 1867. The Association was the means of raising funds to purchase a gold medal for Dr. Barnum, and it was presented to him in 1871 by Dr. Geo. Cushing, who was appointed a committee of one for that purpose.

PRESIDENT'S ADDRESS.*

By Max M. Eble, D. D. S., Louisville, Ky.

Sixty years ago, dental education was simply the acquirement of a trade, while, today, you are brought in contact with the artist, modeler, and sculptor. You must think, as you work over your chemical problems, and grasp the limitations of your intellect, searching for the highest in histological work. New inspirations come to you, as you study the life history in the minute forms of activity in bacteriological work. You must dissect the cadaver, speculate on the dynamic power of the muscles, the activity of the nerves, the strength of the human frame, and watch the knife of the surgeon, as he skillfully dissects out the tumor, or calls to his aid the mechanism prepared by the stomatologist, to assis nature while she restores normal power to a fractured jaw.

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*Read before the Kentucky State Dental Association, May, 1907.

You listen to lectures, work in the pathological and physiological laboratory until you have developed from the mechanic to a thinking professional man in the space of sixty years.

DENTISTRY OF GREAT ANTIQUITY.

Dentistry in general is looked upon as an altogether modern science, but we have abundant evidence to show that it is not only **old** but of great antiquity. In the papyrus of Ebers, 3700 B. C., the oldest medical manuscript known, we find fourteen prescriptions for the treatment of diseases of the teeth and gums.

More than likely Egypt, the most highly civilized country of the ancient world, is the native home of ancient dentistry, for, in temples, on monuments, on the frescoes and bas-reliefs in the cities of Thebes and Memphis, you find portrayed the daily labor, the trades, and the professions of these ancient Egyptians, and one of these represents a dentist operating on a patient. Alexandria, the capitol of Egypt,was in 321 B. C., the seat of a great university, which was celebrated for its medical, optical and dental schools.

One of the mummified bodies of an Egyptian Pharaoh demonstrates most conclusively that natural teeth were not only cared for in the way of lead and gold fillings, but that the aged Pharaoh had lost one of his incisors, and that the court dentist had carved a tooth of ivory, which was fastened into the space with silk ligatures attached to adjacent teeth.

The ancient Chinese, who were a persevering and progressive race, used a peculiar white pitch for restoration, and court dentists ever preserved the teeth of royalty.

Esculapius, a famous Greek surgeon, 1250 B. C., used a narcotic for minor surgical operations, such as extracting teeth, and he, too, advised the purging and filling of teeth.

Navius Aetius, an Arabian physician, and at one time a teacher in the Alexandria University, was the first to discover that the root of a tooth had a foramen for the passage of nerve and blood vessels, and it is claimed he was the first to give a correct anatomical description of the teeth, relative to their being supplied with nerves from the tri-facial.

Medicine, in general, was not extensively practiced among the ancients, and it was customary for those who had been cured of a disease to present themselves in the public square in order that others similarly afflicted might adopt the same treatment.

From the fifth to the seventeenth century, little is known of dental prosthesis.

EARLY WORK IN PROTHESIS.

Ambros Paré, the famous barber-dentist of the fifteenth century, who was surgeon to four kings of France, while serving in the army, discovered the possibility of success in transplanting teeth. He was also the first to construct artificial dentures of gold and silver.

The first porcelain, or, as they were then termed, incorruptible teeth, were the result of experiments by M. Duchateau, an apothecary St. Germain, France, who wore a denture on which were mounted human teeth which had become very foul. He succeeded in making a mineral paste which could be baked, and mentioned it to M. Guerard, a porcelain worker, who undertook to manufacture this substance, and with the aid of a dentist, succeeded in producing a porcelain tooth.

About this time another surgeon, who had also been successful in producing a porcelain composition, purchased from the aforesaid gentlemen the exclusive rights to manufacture this substance, and managed to attract attention from the French Academy of Science, which appointed a committee to assist this man, M. De Chaumont, and they succeeded in making many improvements.

This must be hailed as the time and birthplace of the porcelain tooth of today, and mark you, how it was brought about. Not by one man, but by the united efforts of a committee, or, as we might term it, a society or association.

Dental surgery dragged along for many generations, with an effort here and there, but little was accomplished until Doctors Chapin A. Harris and Elizar Parmly, organized a small dental society, whose blossom was a dental journal, and whose matured fruit is the American Dental College, which sends forth not only a skilled artisan, but a professional man of such knowledge and ability that the American dentist is today acknowledged the peer of all in every country under the sun.

USEFULNESS OF DENTAL SOCIETIES.

Do you not swell with pride when you can say that? Not only say it, but prove it? Do you expect the march of progress to continue? All the advancement we have made rests on a single foundation, and that is the dental association. Sweep away every dental college in the land, and new ones will soon be established—by what? Dental associations, but put out of existence dental associations, how long would dental colleges last?

Twelve years ago, not six of our profession in the city of Louisville were on more than a speaking acquaintance. If a difficult problem confronted us, what did we do? Simply the best we could, and hoped it was well done. What do we do today? Why, tell our patient that we prefer to wait until we can bring the case before either one of our two flourishing local dental societies, and get the opinion not of one man, but of an association of men.

As a result of our local society, good fellowship prevails, we have become better dentists, the public has been better served, and as certain as day follows the night, better service means better remuneration.

What has brought about such a revolution in methods of practice, as for instance gold and porcelain inlays? What has caused the higher educational requirements for matriculates in our colleges? The dental societies. Can any of you dispute this assertion? I dare say no, and yet what have you done to make our meetings a success?

What kind of an answer did you send to that first letter of the executive committee? What did you say to the second appeal? I hope we have only Kentuckians here just now, for I do not want outsiders to know our secrets. It is an easy matter to get up a successful and profitable meeting, if you are fortunate enough to get such a committee as we have this year, and especially the executive committee, the chairman of which, Dr. J. W. Clark, who, not for the honor, as he has had that several times, but on account of his interest in the profession, has worked, worked, worked, the result of which can be seen in the next three days.

When the proof of the program was handed me, I called Doctor Clark's attention to the fact that he had forgotten to put the place of residence after the clinicians' names. He said he thought it best to leave that off, or some might think this was the Louisville Dental Society, instead of a State association. Look over the list, and you will see about four clinicians outside of our city. What is the cause of this lack of enthusiasm on the part of so many of our sometimes styled "country members?" Lack of ability? No. Lack of inclination to keep up with the march of progress? Not a bit of it. Modesty is the principal cause. Many seem to think that unless they can give something extraordinary, their efforts will be of no avail. What a grievous error, when nine tenths of our work is ordinary, and, to show you how much we need demonstration in such lines, watch some of the clinics, and note for instance the difference between filling a tooth with amalgam, and plastering a plastic, as is too frequently done.

A dentist may be a good, honest, conscientious man, and not be a good citizen. A good citizen is one, who not only absorbs all that is possible, but who goes among the community, in order that others may be impregnated with his talents of whatever character they may be. Nothing so polishes the intellect as the contact of mind with mind. It awakens in you a consciousness that others know as much, and more than you, and unless you expect to fall by the wayside, you must crawl out of the rut, so well worn, and strive for the ideal, which cannot be done single-handed, but by communing with your fellowman and practitioner.

The principal function of every State Dental Association is the betterment of dental services rendered the people of the State. The dissemination of new thoughts, new ideas, and new methods is so meagre in our State, because out of a total of six hundred dentists, not many more than one hundred are actual members of our association. Too small a percentage is available for any united action on matters of importance to our profession and the public. Co-operation is the keynote to success, and the only way to obtain that is by increasing our membership.

Some six years since, I had the honor of reading a paper before this association on "Elevating the Profession." Recognizing then, as now, that in union there is strength, I argued that attending one dental meeting a year is not enough to keep a man in touch with what is transpiring in our profession, or to keep up his enthusiasm. What was advocated then will be reiterated now, viz., the formation, in different sections of the State, of local dental societies, which will be tributary to, and work in harmony with our State association.

SUBORDINATE SOCIETIES.

Illinois and a number of other states have adopted the lodge system of organization, there being a number of local or component lodges or societies, which, united, constitute what they term the supreme, or, as we call it, the State society.

I would recommend the appointment, by the State society, of a committee of three which shall get the names of the dentists of the State, and take up with them the matter of forming local or subordinate societies. The committee could soon find how many men would be eligible, and over how much territory such local society should have jurisdiction, whether one, two, or more counties depending largely upon the number of dentists, and the facilities of transportation from the different towns or cities. The number of meetings should not be less than four, nor more than ten a year.

We have such a society in Louisville, which meets the first Saturday night of each month, except July and August, and has done so for eleven years past. Every member knows when it meets, makes no other date, and as a result, we nearly always have a full attendance. Membership in this society is limited to ten. Papers are read in alphabetical order, and a supper is served by the essayist, usually previous to the meeting. Nothing adds so much to the success of a meeting as a little filling for the inner man, and it is an established fact that those societies which have made the most progress have also had the social side well developed.

A constitution and by-laws, patterned after those of the State association, may be adopted, and the dues so fixed that there will be enough surplus in the treasury of your local society, to pay the annual dues to your state association, of which every local society man should also be a member. Care should be taken that only desirable men are enrolled, yet frequently those who have probably not lived up to the code of ethics very strenuously, will assume a different attitude toward their professional brothers, and make most worthy acquisitions.

In many sections of our state where ethics is unknown, and where every man's hand is against that of every other man, a local dental society will promote goodfellowship, and man will soon be working, hand in hand, for the improvement of local conditions, and the advancement of the dental profession.

In these societies, there is a better opportunity for personal acquaintance; there is a sort of family feeling, which takes away the reserve and diffidence of especially the young man, and stimulates him to continue that work so nobly begun in our dental colleges. In order that we may keep apace with our kindred profession, we must have thinking, studious and industrious men instead of bidding good-bye to the textbook, as is too frequently done by the young graduate, his work must continue, while theory is still fresh in his mind. Such is the opportunity in a local dental society, which really is a training, or post-graduate school for the young, as well as the old.

The mere fact that, in the past, societies have been established in your section, and have failed, should be no bar to renewed effort. Jealousy is the greatest obstacle you will have to surmount, and a few men must do most of the work, but difficult obstacles are only overcome by ceaseless labor.

"To win the prize our hearts may wish
  We have to work and wait;
You can't expect to catch the fish,
  Until you dig the bait.

Too many there are, who never work,
  But simply watch and wait,
Until they get a chance to fish,
  With some other fellow's bait."

Did I not show you how much progress the dental pro fession has made in sixty years? How was it done? What did the faculty of the University of Maryland say to Chapin A. Harris, in 1838, when he consulted them with a view of establishing a Dental Department?

They said, "Dentistry was of too little moment to call for a college training." What did Harris do—give up and say, "Oh, well, I have tried that?" No, he continued to work in the face of discouragement from the most learned of his day, and a year later established the first dental college in the world.

If the committee on organization is appointed, as I suggest, and you should be selected in your locality to assist in the formation of a society, come forward like a man, and give a helping hand. Maybe you are a busy man, and your time is valuable; that is just the kind of a man the committee wants, a drone never did accomplish anything, and the drone is what the local dental society will elimate.

With about half a dozen of these societies scattered over the State, what an awakening there would be in the dental profession. How easy it would then be to get up our annual State meeting, as these societies would vie with each other to participate in our program.

Glance over the program and see our distinguished guests. What sacrifices have they not made to be with us, and for what? Simply the consciousness of knowing that they are following in the footsteps of our predecessors, such as Taft, Patrick, Barrett, Bonwill, Abbott, Flagg, etc.

The committee which I advocate the State association to appoint, should not undertake too much the first year. Starting out, for instance, with forming associations in localities where Lexington, Covington, Bowling Green, Owensboro and Paducah, would be the natural headquarters.

It would be well, if the association is financially able and I am sure it is, to place one hundred dollars ($100.00) annually at the disposal of this committee for necessary expenses, the principal item of which would be to send a member of this committee to different sections of the State to assist in the formation of these societies, after the preliminary work had been done. Of course, such preliminary work could all be done by correspondence between the committee and members in the respective localities.

While there are many subjects upon which I could address you, it is my humble opinion that the foregoing is the most important. In conclusion—for your kind attention, for the valuable assistance you have rendered and for the honor you have conferred upon me, I most heartily thank you.

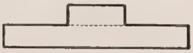
EXCHANGE OF PRACTICAL IDEAS

[This department being an exchange of practical ideas, it depends upon our readers furnishing material to keep it going. Just a few practical ideas from each subscriber will make it of mutual benefit and practical worth. Are you willing to do your share? Help the good cause along by sending the editor a few practical suggestions. Send something today. Address Dr. L. P. Bethel, 1255 Neil Ave., Columbus, Ohio].

A METHOD OF RESTORING BROKEN FACINGS IN CROWNS AND BRIDGES.

By Charles W. Bruner, D. D. S., Waterloo, Iowa.

Remove all porcelain from original backing leaving pins intact. Cut new backing from pure gold plate, gauge 36, a little larger, mesio-distally and gingivo-incisally, than original backing. Place backing over pins and mark relative position of pins. With pin punch or an aluminum plate loop punch, make an oblong slot in backing at point indicated, of size to allow backing to pass over pins freely. Place backing in position over pins and burnish to accurately fit original backing, burnishing to a sharp well defined outline over incisal edge.



To make a box to fit over pins cut pure gold plate, same gauge as above, to form of illustration: of length to encircle pins, and width, equal to length of pins. With narrow flat nose pliers shape to form of slot in backing, and bend upright wing of gold at right angle to form cap of box. Now place backing and box in position over pins and with a small sharp plugger tack mass-fiber, or any crystal mat gold, well annealed, around border of box to hold it in proper relation to the backing. Carefully remove the backing and box together, and from this point treat this as a matrix, build up facing with any of the low-fusing porcelains of proper shade. I have found Jenkin's Prosthetic Porcelain very satisfactory for this work.

When facing is built to desired shade and contour, without removing the matrix, cement in position on original backing and after cement is thoroughly set, burnish matrix over incisal edge and polish.

EXCHANGE OF PRACTICAL IDEAS.

By D. E. Sheehan, D. D. S., Hamilton, Ohio.

Under this head in the June issue, I notice an article against the reliability of all cocaine solutions because of their rapid deterioration. If at the end of one year a cocaine solution retains its original potency it certainly argues that the following has some degree of permanency at least. On May 1st 1906, I had four ounces made up for an endurance test and have used it two or three times a week since to find it as efficient today as it was when fresh. The formula is as follows:

℞

Acid Boracic	gr. IV.
Cocaine Mur.	gr. XXXII.
Listerine	
Glycerine	a a ʒ II.
Menthol	gr. I.
Ag. Dist. Addi	℥ IV.

D. ft. Sol. Local Anesthetic.

This formula is not original with me, as I saw it published somewhere six years ago. It is used by several surgeons, intimate friends of mine, in operations for removal of superficial tumors, in circumcision, etc. It has been used continuously in a dental college clinic for five years without a single case of cocaine poisoning, and is now used successfully in the private practices of at least thirty dentists of my acquaintance. My druggist charges me sixty cents for four ounces. Three or four minims injected into the lingual and as much into the labial tissues contiguous to the tooth to be extracted is sufficient to anesthetise the area. After the solution is injected, the gum should be rubbed with the index finger as this seems to make the action more complete. If the solution shows any signs of cloudiness, filter again.

TEMPORARY PLATES.

By C. W. Reelhorn, D. D. S., Pataskala, Ohio.

Quite often we are called upon to extract several teeth in the upper jaw and insert a temporary set immediately. In most cases where the molars and bicuspids are extracted, the gums shrink very fast, and as a matter of fact the plate is of little or no account in a very short time. My rule is in cases of that kind whenever possible, to extract the molars and second bicuspids, and leave the anterior teeth until the gums have healed and the sharp points of the alveolar process absorbed. Then I extract the anterior teeth and take the impression at the same sitting. By following this rule I find the patient is always able to use the temporary plate until the gums are in good condition for the permanent set.

A HIGH-POWERED BLOW-PIPE.

By R. V. Hurdle, D. D. S., Mt. Sterling, Illinois.

The following by Dr. H. J. Morris, Sheffield, England, recently appeared in your excellent journal:

"A blow-pipe of more than ordinary power is not infrequently wanted for repairing dentures with vulcanite attachments without detaching the vulcanite, and for fusing platinum solders, etc.

"Mr. Morris showed that this could be easily obtained by attaching the "air-supply" tube of the blow-pipe to a cylinder of N_2O and so obtaining a mixture of gas (coal) and N_2O. With this Mr. Morris obtained a fine flame 2—3 in. long, which melted steel burs in a few seconds."

The same thing can be done with the gasoline outfit (I use the same blow-pipe); using just enough of N_2O to get the desired flame. It melts 25 per cent. platinum solder in a jiffy.

A FEW THOUGHTS FROM A RECENT GRADUATE.

Don't back-water, and let a patient dictate to you about a piece of work against your judgment, because you will be paving the way for trouble in the future.

Don't be too dignified with your patients; because they may take you for a snob.

Don't be too familiar with your patients because they will impose upon you.

Don't attempt to insert gold in every cavity that you are called upon to fill.

Give amalgam due consideration; use it intelligently, and you will be surprised what excellent results you can obtain with it.

When I am called upon to insert some fillings in the anterior teeth for some of the poorer class, and they cannot pay for gold, I prepare my cavity and dry it thoroughly, then place a small amount of thin cement in it, and over this I place some amalgam, then with an amalgam instrument I squeeze out as much of the cement as possible. Then wipe the excess from the margins and finish in the usual way. Excuse the patient for a couple of days, then trim and polish same with pumice and whiting and moose-hide disk. I find that I have very little discoloration to the tooth, and it is better than cement because it will not wash out.

But always take as much pains with your amalgam fillings as you do with gold and you will have an A-1 filling.

SUGGESTIONS

PORCELAIN-FACED PLATINUM CROWNS, WITH A NEW METHOD OF REINFORCING.

By G. Brunton (Leeds), England.

Platinum is selected for the crowns instead of gold, because it is less conspicuous and will take a high-fusing porcelain. The platinum shell being adjusted to the root and articulation, a thin metal lining is prepared to follow somewhat the contour of the cusps. The use of this lining is to produce an equal thickness of reinforcement. The surface next to the reinforcement should be tinned. The reinforcement is made with pure tin. Sufficient tin is melted inside the crown by holding over a spirit flame and the lining is dropped in and held to position while cooling. To prevent the tin from adhering to the platinum all round, the shell is rubbed on the inside with a black lead pencil and a small point about the size of a pin head is scraped clean and touched with soldering fluid (spirit of salt). This produces a closely-fitting reinforcement, which only adheres to the shell at one small point, thereby avoiding the contraction of the shell when cooling and preventing the porcelain face from cracking.

Platinum having the same co-efficient of cubical expansion as porcelain, there is no risk of cracking, which there would be if gold were used. Time-saving and simplicity may also be claimed as some of the advantages of this method.—*British Dental Journal.*

A SOOTHING ANT-ACID.

Gordon White, Nashville, Tenn.

I have found nothing better for neutralizing the effect of the acid on the mucous surfaces, or more soothing to the membrane, than to rinse the mouth with milk of magnesia.—*Dental Cosmos.*

CORRECTING OCCLUSION AFTER MAKING CONTACT POINTS.

W. V. B. Ames, Chicago, Ill.

Correcting the occlusion or adapting the occlusion to the changed conditions brought about by the wedging of the teeth prior to filling is as necessary as making the contact point. Half the question, it seems to me, is the proper grinding of the cusps to prevent the tendency to create a space partly as bad as previously existed.—*Dental Review.*

PRESSURE ANESTHESIA.

W. D. Miller, Berlin, Germany.

After excavating the cavity as far as convenient, and smoothing the borders a bit, take an impression with Stents' composition, endeavoring to get the margin of the cavity fairly well brought out; put a few threads of cotton into the cavity and saturate them thoroughly with a 5 to 10 per cent. solution of cocaine, cover this with a small bit of rubber dam, and then press the Stents' impression down upon it. We obtain thereby a perfect closure of the margin so that the liquid can not escape, and one can then exert pressure with the thumb sufficient to press the solution into the dentine. I went immediately into my laboratory and tried the experiment on freshly extracted teeth, and found I could press the solution through two millimeters, while breathing twenty times (about 1½ minutes) in a sufficient quantity to stain the pulp superficially. I got hold of this idea only two days ago, so that I have not had much opportunity of trying it in practice. I had three cases yesterday, one a bad case of caries of the left lower first molar, a sort of leathery decay, causing much pain. I attempted, first, by means of a spoon-shaped excavator, to lift out a great flake of softened dentine, but the pain caused was so great that I was obliged to desist. I took an impression and proceeded in the way I have described, and inside of two minutes the anesthesia was so complete that I could excavate that tooth completely without causing the boy any pain. The second case was that of an exposure of pulp in a left upper lateral incisor. I took the impression and proceeded in the same way and was able immediately to extirpate the pulp. The third case was a lower second molar with a cup-shaped cavity; the walls were broken down and there was a certain amount of spontaneous healing of the dentine. In those cases it is difficult to penetrate the dentine. I took an impression and applied the method, but did not succeed in producing complete anesthesia, for the reason just stated. I likewise found that thick layers of softened dentine are penetrated very slowly. In a cavity containing a lump of softened leathery dentine, you may apply the anesthetic and wait as long as you please; it will often have little or no effect; especially is this the case where the cavity is greasy. Also, secondary, and to a certain extent transparent, dentine are permeated with great difficulty. Secondary dentine forms almost an absolute barrier to penetration.—*Dental Review.*

HOLLOW POST IN CROWN WORK.

Dr. Land.

This is a little scheme that I found valuable in aggravated forms of abscess where you are not sure that you have cured it; no matter how careful the treatment. I form what I call a tube post made of platinum and iridium on a tapering piece, an instrument just the size of the post I want to use. Don't solder it together at all. After I form that tapered tube and have the narrow end go down into the root, I then take a platinum foil and bring it up to fit on the end of this, or what I think the length of the tube should be to go into the root, and I solder it there. Then I slide it into the root and mallet the platinum matrix. This takes an impression of the end. I make it in two sections, like this. I immediately commence to fire on the porcelain crown; put it in the furnace and form the cusps, as shown in this case, and when completed there is a tube through the crown penetrating into the root, so that I always have ready access to it in case of subsequent abscess or ulceration, so I can uncork it any time I like without disturbing the original piece of work. There are times when you are glad to have it open, and the patient is too.—*Dominion Dental Journal.*

A METHOD OF CLEANSING AND PERFUMING RUBBER-DAM.

C. R. Fitch, L. D. S., Eng., of Southport.

The following is a method which I use to perfume rubber-dam, and, at the same time, render it practically aseptic:

Thoroughly wash the rubber with soap and hot water. Then wash in a 1 in 40 phenol solution. Rinse in hot water. To subsequently perfume the rubber: Take about a pint of boiling water, and add about 2 ozs. finely powdered French chalk. Allow this to cool. Dissolve a sufficient quantity of the essential oil, or mixture of essential oils, with which it is intended to perfume the rubber, in about 1 oz. of rectified spirit. Add this to the chalk and water. Shake this mixture, pour it into a clean basin, and soak the rubber in it for about ten minutes, working the rubber about so that its entire surface gets washed over. Then remove and hang up to dry. Bottle the mixture for future use. The rubber dries streaked with French chalk, but by rubbing it in the hands all streaks are readily removed, and sufficient chalk is left on the surface of the rubber to prevent its sticking together. Roll up, or cut into pieces ready for use, and box. The result is a clean rubber with a pleasant perfume. I have found it much appreciated by patients.

The following essential oils, among others, are useful:—Rose, lavender, orange blossom (Neroli), rose geranium, Java cananga.

If one prefer the rubber-dam to have an odor of some antiseptic, the desired antiseptic can either be added to or entirely substituted for the essential oil in making the above mixture. Treated in this manner, the rubber not only takes up the perfume, but retains it.—*Quarterly Circular.*

GOLD FILLINGS IN PORCELAIN.

Chas. Every Brown.

To put a gold filling in a mineral tooth, grind an impression in the tooth where the filling is required, then cover the ground surface with a little Jenkins' inlay body, and on this press a piece of sponge gold the same size. Fuse this in furnace, and then condense gently with engine mallet, add gold and finish in the same way as with a gold filling. If required a tooth may be entirely faced with gold in this manner, giving the appearance of an all-gold crown, the inlay body holding the first layer of gold quite firmly, if ordinary care is taken as with a gold filling.—*British Dental Journal.*

DESENSITIZING DENTINE.

C. J. Hadley, Chicago, Ill.

Very often we are called to excavate cavities where decay has extended over the greater part of the tooth, and its removal is an extremely painful operation. With children this is a very difficult task. I have devised a most successful method, as follows: Before attempting to remove the decay, protect the cheek and tongue with cotton rolls; then, with a silver nitrate point, thoroughly saturate the decay with the nitrate. Dry out the cavity and seal with a thick solution of chloro-percha and cotton, leaving it in the tooth for a few days. When the patient returns you will find the decay very dark, and it can be removed with very little pain. Small carborundum stones instead of burs are a great help in preparing sensitive cavities.—*Dental Review.*

TREATING PUTRESCENCE IN ROOTS.

A. W. Harlan, New York, N. Y.

Many methods have been proposed to render gases inert. I have found that a crystal of monochloro-acetic acid will do this. In all cases of putrescence within a pulp chamber or root canal, by first isolating the tooth and washing its interior carefully with copper sterilized water, then partially drying it, I place a crystal block of the acid in the center of the pulp chamber, and if there is not sufficient moisture, a drop of sterilized water is added. Within five minutes the tooth may be sealed hermetically with cement. Leave the tooth alone for a few days and open it under antiseptic precautions. You do not need to be changing the dressing every day or two. The worst case of putrescence will yield after two treatments at intervals of one week.—*Dental Review.*

AN OBSCURE CASE OF NEURALGIA.

The case described was interesting in that the repeated appeals of the patient to have a lower bicuspid removed were ignored, as the teeth seemed sound, and the extreme neuralgic pain centering round that tooth was finally quite cured by the removal of the upper third molar on the same side, the root of which was found to be exostosed. The case brought to the minds of several other members similar cases, which were referred to in the discussion that followed.—*British Dental Journal.*

IRREGULARITIES IN THE DECIDUOUS TEETH.

E. A. Bogue, New York, N. Y.

During four or five years I have advanced the opinion that the position of the deciduous teeth affects the permanent teeth, and that therefore any irregularities in the deciduous teeth should be corrected in order to prepare the way for the permanent teeth. If the deciduous teeth are brought to occupy a normal position, the crowns of the underlying permanent teeth will naturally take a correct position and their roots will be formed in harmony.—*Dental Review.*

A METHOD OF MAKING RETAINING-PITS IN PORCELAIN INLAYS.

1. Take the impression of the cavity in the usual way and invest the matrix.

2. Spread a little porcelain body, moistened in absolute alcohol, over the floor of the matrix.

3. Cut a wedge-shaped piece of gold from a portion of Solila gold as it is obtained direct from the manufacturers and not prepared in any special manner, by means of the instrument made for this purpose.

4. Place this wedge-shaped piece of Solila on the floor of the matrix and flow around it the porcelain body.

5. Add successive layers until the contour is attained, and the inlay is complete. To remove the gold:

1. Strip away the matrix from the porcelain.

2. Drill into the gold, which will be seen shining through the thin layer of porcelain on the under surface of the inlay, using a slowly-revolving round bur in the dental engine, making the opening free.

3. Pour a little aqua-regia (equal part nitric and hydrochloric acids) into a test tube, place the inlay in it, and gently warm over a flame until free bubbling occurs at the opening into the gold.

4. When the bubbles cease, which usually happens in four or five minutes, carefully remove the inlay, and the gold will be found to have disappeared, leaving a large wedge-shaped cavity for retention.—*Dental Record.*

PUTRESCENT PULP.

J. E. McDonald.

On opening up a pulp chamber in which there is a putrescent pulp giving out a most offensive odor, dip your broach in oil of turpentine and insert in canal; the odor will change almost instantly, most agreeably to both yourself and patient.—*Dominion Dental Journal.*

A VERY EASY METHOD OF PUTTING IN GOLD INLAYS ON OCCLUSAL SURFACES.

Chas. F. Ash, Brooklyn, N. Y.

After preparing the cavity, taking the impression in compound, I fill the impression with Archite cement, which sets very quickly, as you all know. You can separate the impression and the cement very soon. Place a die so made into the swaging press and with a little piece of gold upon it swage a matrix, putting it back into the cavity for a little final burnishing, and then fill your matrix with 22-k. solder or plate. The whole is then put back into the cavity, the edges polished, and the inlay set. The entire operation can be done in about fifteen minutes.—*Dental Cosmos.*

MECHANICAL PRINCIPLES APPLIED TO CAVITY PREPARATION FOR INLAYS.

J. F. F. Waltz, Decatur, Ill.

Cavities may be so prepared in most instances that the prevailing stress acts to drive their fillings more securely into the cavity, and when tried in place before cementing, the inlays may not be rocked or moved in the least. Such preparation clearly places the smallest amount of strain upon the cement and gains the greatest amount of retention in the cavity form—a state of affairs the inlay worker should always strive to attain to the fullest extent.—*Dental Review.*

SOME THINGS I FIND HELPFUL.

G. A. Dille, Denver, Colo.

The purpose of this paper is to present some of the economics of time, etc., acquired in the practice of dentistry, covering something more than a third of a century.

In the repair of bridge work with facings, wrap the facings in two thicknesses of wet asbestos paper held in place with binding wire and apply blowpipe flame as soon as you like.

If the metal plate to be vulcanized is coated with liquid silex and invested before it is dry it will come out of the investment as bright as it went in and none of the silex will adhere as it may if allowed to dry before investing.

Laboratory wax may be easily and quickly cleaned and put into convenient form by melting the entire mass in a stew pan and then pouring into a layer cake tin coated with mercury. A large pan is best. The wax may be made as thin or as thick as you like, cut into convenient form and stored away for future use.

Pearline makes an ideal separating material, dissolved and colored with red ink or a bit of indelible pencil. A dash of the powder into the boiling water for removing the wax from an investment acts like magic; or for cleansing the hands first lather them with a good toilet soap and on to that apply some of the powder; work it up thoroughly, getting it into all crevices, then apply the brush or sponge with water and the hands are clean before you know it; dry them and apply not more than four or five drops of 2 parts glycerine and 1 part Pond's Extract perfumed and your hands are ready to work for anybody.—*Items of Interest.*

QUICK METHOD OF REPAIRING PORCELAIN FACINGS IN THE MOUTH.

W. A. Burns, St. Thomas, Canada.

The following is a description of the technique of Dr. Burns' method: (1) Remove the remains of the old facings and pins. (2) Select a suitable facing, cut pinholes in the backing, and grind the facing to fit the backing accurately. (3) Remove the facing, take a thin strip of platinum, and bend it around the pins to form a tube by means of a pair of flat pliers. (4) Cut off the pins close to the tooth, adjust the platinum tubes, and solder each tube either by means of the blowpipe after investing the piece, or in a porcelain furnace, using the smallest possible quantity of solder. (5) Slightly enlarge and countersink the holes in the backing; readjust the facing; hold it in position and burnish out the tube to fill the countersunk holes with a round burnisher. Then fill the opening with either gold or amlgam. The chief advantage of this method is in the ease with which facings are replaced in almost inaccessible places in the mouth, and in that it permits of the use of saddle-back teeth so suitable for obtaining artistic effects.—*Dental Cosmos.*

CORRESPONDENCE

SOME REFLECTIONS.

When I went to college, about one week was spent in telling the students about the minute anatomy of the brain, making no more impression on my mind than profound wonder at the memory of the professor. A demonstrator in college told me that he was assigned to teach the freshmen how to scale teeth. He said:

"Professor, what can I lecture on to fill the time. I can tell all there is in half an hour."

The teacher higher up knew how to fill out time, and replied.

"Spend one lecture on the best kind of a knife to whittle a stick, and the second lecture on how to use the stick."

This little confidence made a great impression, causing me to reflect on how many hours I had sat on a hard bench to listen to what was as much use as "how to whittle a stick."

What a move it might be in the right direction, when so much time is spent in a three years' course, to give a few hours to practical matters—good advice of things to do and pitfalls to avoid when the student comes to practice. It would save him or her many errors and the collapse of illusive hopes.

Boys, don't trust to that man who tells you that he is just holding on to his teeth until you have an office, and is then coming to have his case attended to. He never comes until long after, if at all. Don't rely on your relations or intimate friends.

When I thought of studying dentistry, I consulted a friend many years older than myself. He said, "Go ahead!"

In my second year he trusted to my dangerous hands, and even was so indiscreet as to let me practice on his wife. I was too proud to take a fee, and falling into the habit when I was through college, and thought I was smart, I still did his work on the same friendly free terms. He needed bridge-work, and being a man well to do, I could not understand why he did not let me do it, more especially as he was well content with all I had accomplished.

I was a constant visitor at his house, and on the last occasion, to my astonishment, saw his mouth was full of gold caps. He saw my surprise, and said rather sheepishly:

"You see, I have had my mouth fixed at last; I had to or stop eating."

"Yes," I said, not knowing what to do, such was my confusion.

"Well," he went on, with a tinge of defiance.

"My sister had a little German do her work, and it was cheap, so I thought I would have mine done."

While I was at college I lived with a widow who had four children. Her oldest daughter had terrible teeth, which I kept in repair. I should tax your credulity if I related how many times I was told what was to be done to make my practice when I got out of college. She was to fix the back parlor and bring all her friends, and work for me.

About a month before I was to leave college she told me she was going to charge ten dollars a week extra for her back parlor. I thought she was joking, but she assured me that "business was business, and I had best look up rates." I did so and found better quarters around the corner for half the sum. But this did not interfere with my residence, and still doing dentistry for herself and children. A year passed, and as the children were grown, and the oldest girl now making a good salary, I suggested that I have half price in the future.

"Certainly," the widow said haughtily, "glad to pay and have no obligations."

But they never came again. A year after I chanced to see an engagement card on the mantelpiece, where it had been carelessly placed; it said that my old-time patient now had an engagement with Dr. Pullem.

I was much attached to a cousin, and being a bachelor, spent many pleasant evenings at his house. His wife was always most kind, and I could see no way to return the hospitality but to make her presents, so that I considered here was a family that would show friendly feeling when I got ready to begin work.

One evening when I had been a year in my office on the next block, I was at my cousin's house, and said:

"Where is Jenny?" who was the sister of my hostess.

"Oh," said she, "Jenny is upstairs with a face-ache. I told her yesterday she should go and see a dentist.

One morning a young man that I had met at the house of my cousin, called. He had an exposed pulp, and I was so rash as to try to save it for his GOOD. I told him if it pained again to come and I would kill the nerve, but that he was way ahead if he kept life in the same tooth. Hearing nothing, I fondly hoped I had done him good, and saved a pulp from destruction. A month later we were playing cards in my cousin's house and the young man put his hand to his face. I asked him the trouble, and as he seemed embarrassed, forebore to press the matter. We left the house together, and when in the street, he said:

"Say, Doc, I did not want to mention it in the house. but that tooth ached a day after you filled it, and Mrs. ——— (my cousin's wife) told me I had best go to her dentist He killed the nerve and put a cap on it, with a charge of twenty dollars."

"A cap," I said. "The tooth needed no cap."

"Well, I am sorry I did not come to you, and that is why I did not want to speak of it in the house."

I took off the cap, getting him all right, and he has been a patient since. But we agreed to say nothing about it.

In many families they have quarrels. I was so fortunat as to stay on the circumference of the storm-center, but it caused strained relations with a relation. This was a lady that never patronized me. One Sunday her husband called, as his dentist was out of town, and he was in pain. Getting relief, it was followed by the wife and little girl. Pleased at this offer of the "olive branch," I gave special pains to the case.

The child was spoiled, crying before she was touched, and after giving a great deal of trouble, left the chair saying:

"Ah, you did not hurt me a bit."

On the second visit the child was alone, putting me through a sad experience. Calling on the mother, it was explained that some control must be used. The mother said:

"I cannot do anything with her. Every time I take her to the dentist, I have a headache the next day. I took her to you as you were around the corner, and I heard you were so successful with children. If I have to go with her, I might as well take her to the other dentist."

But this did not make me a pessimist, as had she not said I "was successful with children." This was balm, as I nailed down another hope in its coffin.

A second cousin came with his wife, and all was well. Then he had his little boy attended. This was a disaster, as the boy had a second six-year molar very far gone. Later he caught cold. The cold was prolonged, so the mother diagnosed it as abscessed, and had the same extracted with gas. The boy was in bed for a week, and was minus a tooth.

When the lady came to pay the bill, she wanted the work on this deducted. As the amount was preferred rates to relations, I demurred more at the reflection on skill than the loss of the money. The cousin got her way, but I learned later I had lost her good-will. Nevertheless, I was fortunate to have her speak most encouragingly to others as to my qualities, so I got some valuable patients. It chanced that one of these came to me, saying she had met my cousin, who offered to take her elsewhere, but the patient that was not a relation elected to remain with me, and informed me so that I constructed another coffin for burying ideals.

Young man, your relations have a measurable amount of faith in you. Strangers appeal more to their respect. As showing I will tell this experience.

A brother of mine living in the south sent his wife and child. I found the little girl had the six-year molars to be filled.

"Oh, no," said the mother, "those are temporary baby teeth."

I explained the old story of the six-year tooth, but she was not satisfied, and said Dr. Frazier had told her so, and he was a very skillful man.

Again I went over the rudamental story, and she insisted that they were not to be touched, but wanted the real baby teeth, of the canine variety, stopped with gold, as she expressed it.

I showed her the teeth mentioned were loose, and even got out a book giving authorities, yet she said Dr. Frazier was "a most capable man."

Investigation showed she had not seen Dr. Frazier for two years, so I hinted that it would be well for her to go to him, as he enjoyed her confidence. Right here I did wrong. I would have been more diplomatic to have bowed to what Dr. Frazier NEVER did say and done what she asked, as in the premises it would have been no harm, although doubtful good. I showed feeling, which a wise man should not do, for the saying is beyond price:

"He that ruleth himself is greater than he that taketh a city."

The child by this time had no faith in me, and began to cry, so I made another failure. But worse was to come. I wrote a letter to my brother, in a humorous vein (or an effort that way). He replied that he "appreciated the situation, and had troubles of his own." The correspondence was related to his wife, and she has never forgiven me for "making mischief."

In your practice, young man, I would urge that you shun argument about saving teeth, when they are set on having rubber in the place. By this I mean too much stress. I have been there and "suffered for righteousness' sake". When a man or woman is nerved to have teeth extracted—than which the pangs of dissolution are not worse—you waste time, and hand the operation to another man. This reminds me of the old colored gentleman who tried to ride a mule. He was promptly thrown, and getting up found he was all there, and remarked:

"That is what makes me always 'SPISE a mule."

Now, the old darkey was wrong to have contempt for the mule. He should have known better than to try to ride, when the mule was stronger than he was. He got on the wrong mule.

When a young man presses too far in the right direction for good he is trying to ride the wrong mule. The patient thinks you are talking for yourself, and throws you off. Don't try to save the life of an aching tooth. If you do there is no halo, and if you don't, you get a crown of thorns. I am far from saying that you be a pessimist. A smile is worth a thousand groans in any language. But the man who ignores the factor of human nature should consult Proverbs, and the wisdom of Confucius written six thousand years ago. The optimist who says all is good, and there is not a hole in a cruller, despises the mule.

So shun relationship, except socially, for then you do not see the seamy side of the garment. Financial relations are a rock that has wrecked many loving hearts. You may cut your compensation for kindness, but the other side think your reduced rates is a measure of your merit. A last word to you: "Be honest." Have always before you the Golden Rule. While this tells you to "love your neighbor as yourself," it does not tell you to love your fellow-dentist BETTER than yourself, and this is what you do when you try to conserve pulps. So work for your relations FREE, or not at all. Charge your friends a fair price, and rely on strangers EVERY TIME.

Brooklyn, N. Y. F. B. SPOONER.

OBITUARY

WILLOUGHBY D. MILLER, A. B., PH. D., M. D., D. D. S.

Dr. Miller was born in Alexandria, O., August 1, 1853, and died there following an operation for appendicitis, July 27, 1907. He lived with his parents on a farm until 13 years of age, when they moved to Newark, O., where he graduated from high school in 1871. He then attended the University of Michigan, at Ann Arbor, receiving the degree of A. B. in 1875. From there he went to Edinburgh, Scotland, and studied chemistry, physics and applied mathematics, in the Edinburgh University, going from there to Berlin, Germany, in 1876, and continuing these studies there.

While in Berlin Dr. Miller became interested in dentistry, chiefly through Dr. F. P. Abbot, of Berlin, and returned to America and attended the Pennsylvania Dental College during the session of 1877-78. He attended the University of Pennsylvania dental department the following year, and received the degree of D. D. S. in 1879. After graduating in dentistry, he returned to Berlin to practice his profession and pursue his studies. He studied bacteriology under the renowned Koch, and later wrote his treatise, "Micro-Organisms of the Human Mouth," so well and favorably known. In 1884 he was appointed "royal professor" in the University of Berlin, an honor never before conferred upon a foreigner.

In practice he had among his patients the empress, when she was crown princess, and various members of the royal family.

In September of last year the emperor gave Dr. Miller the title of "Medical Privy Councillor," it being the first time this honor was ever conferred upon an American, and the first time it was ever conferred upon a dentist of any nationality.

Aside from " Micro-Organisms of the Mouth," Dr. Miller was the author of "Lehrbuch der Konservierenden Zahnheilkunde" (Text-book of Conservative Dentistry), and more than one hundred separate publications of from two to one hundred pages. Dr. Miller had been president of the American Society of Europe, the National Dental Association of Germany, the Association of Dental Faculties of Germany, was president of the International Dental Federation at the time of his death, and had been an honorary member of more than forty different dental societies. He was an active member of the Delta Sigma Delta Dental Fraternity.

Dr. Miller married the daughter of the late Dr. F. P. Abbot, of Berlin, Germany, in 1879, who, with one son, aged 27, and two daughters, aged 22 and 12, survives him.

In June of the present year, Dr. Miller came to America with his family, intending to make it his future home, having accepted the deanship of the dental department, University of Michigan.

His loss will be keenly felt by the dental profession everywhere.

MICHIGAN'S NEW DENTAL LAW.

Section 1. It shall be unlawful for any person not a registered dentist within the meaning of this act to practice dentistry or dental surgery in any of its departments, as principal or agent, in the State of Michigan, except as hereinafter provided.

Sec. 2. From and after the passage of this act, the State Board of Dental Examiners, herein provided for, shall consist of five members, to be appointed by the governor. The members of the board created by act number one hundred and forty of the Public Acts of eighteen hundred and eighty-three, entitled "An act to regulate the practice of dentistry in the State of Michigan," holding office at the time of passage of this act, shall be continued in office as members of the State Board of Examiners until expiration of the term for which they are appointed. The additional members of said board shall be appointed for such periods that the term of office of one member of said board shall expire annually, and annually on January 1st thereafter the governor shall appoint a member of said board whose term of office shall be for a period of five years. The several members of said board shall hold office until their respective successors are appointed and qualified, and if any vacancy occurs in said board another shall be appointed as aforesaid to fill the unexpired term thereof. The members of said board shall be electors and reputable dentists, who have resided in this state for at least five years and have had at least five years' experience in their profession. Said board shall have full power to make by-laws and necessary regulations for the proper fulfillment of their duties under this act. It shall choose one of its members president and one secretary-treasurer, and shall hold two regular meetings each year at such dates and places as may be deemed best. Special meetings may also be held. A majority of the board shall constitute a quorum for the transaction of business. Said board shall keep a full record of its proceedings and a full registry of all persons licensed and certified as dentists by said board, which shall be public records, and at all times open to inspection as such. A transcript of any of the entries in such record, certified by the secretary-treasurer under the seal of said board, shall, at all times and places, be competent evidence of the facts therein stated. The members of said board shall have the power to administer oaths and hear testimony in all matters relating to the duties imposed upon it by law. Said board shall make an annual report of its proceedings to the governor on or before the thirty-first day of December in each year.

Sec. 3. All persons who desire to begin the practice of dentistry in this state after the passage of this act, and who shall have a license from the dental board of another state, or who shall have received a diploma from the faculty of some reputable dental college, duly organized under the laws of this or any other state of the United States, shall have the right to apply to the dental board of this state for examination as to their proficiency; and all successful applicants shall be licensed and registered by said dental board. Said dental board shall be authorized to ascertain and determine what shall constitute a dental college or institution in good standing and repute; but no such dental college or dental institution shall be considered reputable unless the same shall possess the following qualifications:

First, It shall be chartered under the laws of the state in which it is located and operated, and shall be authorized by its charter to confer the degrees of Doctor of Dental Surgery or Doctor of Dental Medicine.

Second, It shall deliver, annually, a full course of lectures and instructions by a competent faculty and corps of instructors in the following subjects: Anatomy, chemistry, physiology, histology, materia medica, therapeutics, dental metallurgy, pathology, bacteriology, operative dentistry, prosthetic dentistry, crown and bridge-work and oral surgery and hygiene, said course of instruction to consist of not less than three terms in separate academic years and of not less than thirty-two weeks of six days for each session, and shall require its matriculates to have a general education equivalent to that required for graduation from a high school of recognized standing.

Third, The apparatus and equipment of each said dental college or institution shall be ample and sufficient for the ready and full teaching of the above-named subjects, and every such college shall allow said State Board of Dental Examiners of this state the privilege of inspecting its work and equipment at any time.

Sec. 4. Said dental board shall have power, after due notice in writing for twenty days and upon a full hearing at a time and place fixed in said notice, to revoke and annul any original license or registration for fraud, deceit or misrepresentation in the practice of dentistry, or for gross violations of professional duties. Nor shall said dental board re-license any one whose license has been revoked for any of the above causes within one year after such revocation, and then only upon sufficient assurance and guarantees to said board of correct conduct for the future. The notice hereinbefore provided to be given may be served by registered letters mailed to the address of the dentist under investigation, and when the whereabouts of any such person is unknown, then said notice may be sent to the last known address of such person.

Sec. 5. All persons entitled to examination as provided in this act shall file application and license in writing, supported by affidavit, stating the facts which entitle him or her to such examination, and each applicant shall accompany his or her application with such license or diploma for verification as to its genuineness. All applicants for examination shall, at the time of making such application, pay to the secretary-treasurer of the dental board a fee of twenty dollars, and each applicant shall present himself before the said dental board for examination at the first or second regular meeting after his application shall have been made, and in default thereof said fee shall be forfeited to said dental board. The fee for any subsequent application for examination or re-examination shall be ten dollars. The examination may be written or oral or both, at the option of said board, and shall include the following subjects: Anatomy, chemistry, physiology, histology, bacteriology, operative dentistry, prosthetic dentistry, crown and bridge-work, and oral surgery and hygiene. All persons of good moral character, who shall successfully pass such examination shall be licensed and registered by said dental board and shall receive a certificate of such license and registration, duly authenticated by the signature of the members of the board, and with the seal of said board attached; and in no case shall said examination fee be refunded, but said dental board may, for sufficient cause, remit said fee for re-examination.

Sec. 6. No person having received a certificate from the State Board of Dental Examiners in the manner herinbefore provided shall engage in the business of a dentist in any county of the state in which he shall locate, or into which he shall afterwards remove. until he shall have had such certificate recorded in the office of the county clerk of such county, and it is hereby made the duty of the county clerk to record such certificates in a book provided and kept for that purpose, and the clerk is authorized to charge a fee of fifty cents for recording such certificate, to be paid by the person offering such certificate for record. The record of each certificate required by this act, or certified copy thereof, shall be evidence in all courts that the person holding it is a registered dentist within the meaning of this act. It is hereby made the duty of each county clerk in the state to furnish the State Board of Dental Examiners, on the first day of July, a list of all dentists registered in his county during the preceding year, this report to be made on tabulated blanks to be sent to said county clerk for the purpose. The register of the county clerk shall be open to public inspection during business hours. Any failure or neglect or refusal on the part of any person holding such certificate to register the same with the county clerk as above directed, for a period of six months, shall work a forfeiture of the certificate. In order that a complete register of all the dentists practicing in this state at the present time may be made, within sixty days after this act takes effect, it shall be the duty of every dentist at present practicing in the state, whether legally licensed at present or otherwise, to forward to the Board of Dental Examiners an affidavit setting forth the facts of his registration or the credentials upon which he may claim re-registration. This application shall be accompanied with a fee of three dollars, which shall be deposited in a special fund, to be used only by the Board of Examiners for the enforcement of this act against unlicensed or unregistered practitioners. No license or certificate of registration when once forfeited for any cause, shall be registered, except upon the payment to the said Board of Dental Examiners of the sum of twenty-five dollars as a penalty for such neglect, failure, refusal or misconduct.

Sec. 7. All persons shall be said to be practicing dentistry within the meaning of this act who shall use the words or letters "Dentist," "D. D. S.," or any other letters or title in connection with his name, which in any way represents him as engaged in the practice of dentistry, or who shall advertise or permit it to be done by sign, card, circular, handbill, newspaper or otherwise, that he can or will attempt to perform dental operations of any kind, treat disease or lesions of the human teeth or jaws, or replace lost teeth by artificial ones, or attempt to correct malposition thereof, or who shall for a fee, salary, or other reward, paid or to be paid, either to himself or to another person, perform dental operations of any kind, treat diseases or lesions of the human teeth or jaws, or replace lost teeth by artificial ones, or attempt to correct malposition thereof. But nothing contained in this act shall be taken as applying to the acts of legally qualified physicians in the extraction of teeth, in the performance of their duties as such, or to acts of bona fide students of dentistry done in the college building, in the pursuit of clinical advantages while in attendance upon a regular course of study in a reputable dental college. Any dentist, proprietor, partnership, association or corporation, owning, running, operating or controlling any room or rooms, office or dental parlors, where dental work is done, provided or contracted, who shall employ, keep or retain any unlicensed dentist or student as an operator shall be guilty of a misdemeanor and punished as in section nine.

Sec. 8. Out of the funds coming into the possession of said board as above specified, the members of said board may receive as compensation the sum of ten dollars for each day actually engaged in the duties of their office as such examiners and actual necessary expenses. Said expense shall be paid from the fees and assessments received by said board under the provisions of this act, and no part of the salary or expense of said board shall ever be paid out of the state treasury. All moneys received in excess of said per diem allowance and mileage as above provided for, shall be held by the secretary-treasurer of said board as a special fund for other expenses of said board and for carrying out the provisions of this act. The secretary-treasurer of said board shall, from time to time, give such bond for the faithful discharge of his duties as the custodian of funds of said board as it may direct. Said board shall appropriate from any fund under its control a sum of not to exceed five hundred dollars annually as compensation for the services of secretary-treasurer.

Sec. 9. Any person who shall practice, or attempt to practice, either as proprietor, employee or assistant, without having a license, or without having his license renewed as provided by section six of this act, or without keeping his license in open view in his operating room, shall be punished by a fine of not less than fifty dollars nor more than two hundred dollars, or by confinement in the county jail not less than twenty days, or by both such fine and imprisonment. It is hereby made the duty of the prosecuting attorney of each county in the state to prosecute every case to final judgment, whenever his attention shall be called to a violation of this act.

Sec. 10. An applicant shall be registered and given a certificate of registration if he or she present a certified copy of certificate of registration or license which has been issued to said applicant in any other state or foreign country where the requirements for registration shall be deemed by said board to be equivalent to those of this act: Provided, that such country or state shall accord a like privilege to holders of certificates from this board. The fee for registration of applicants of this class shall be ten dollars, to be paid at the time of application.

Sec. 11. Any person filing, or attempting to file, as his own, the diploma or license of another, or a forged affidavit of identification or qualification, shall be deemed guilty of a felony, and upon conviction thereof shall be subject to such fine and imprisonment as is made and provided by the statutes of this state for the crime of forgery.

Sec. 12. Act No. 140 of the Public Acts of 1883, and all acts or parts of acts in any way contravening the provisions of this act are hereby repealed.

SOCIETY

SURGICAL CLINIC OF THE JAMESTOWN DENTAL CONVENTION, NORFOLK, VA., SEPT. 10-12, 1907.

The following gentlemen will give surgical clinic at Jamestown Dental Convention:

Dr. Trueman Brophy, Chicago, Ill.
Dr. M. I. Schamberg, New York, N. Y.
Dr. W. J. Roe, Philadelphia, Pa.
Dr. V. P. Blair, St. Louis, Mo.
Dr. W. A. Bryan, Nashville, Tenn.
Dr. B. G. Copeland, Birmingham, Ala.
Dr. Wm. T. Nicolson, Atlanta, Ga.
Dr. Fred W. Moorehead, Chicago, Ill.
Dr. Randolph Winslow, Baltimore, Md.

Dr. Schamberg will also give an exhibition of the X-ray for making diagnosis and a clinic with the X-ray, showing its diagnostic value in oral surgery.

These operations will be performed in the operating rooms of the Norfolk Protestant Hospital, where patients will be cared for following the operation.

It is expected that patients will be furnished all operators, as a committee has been appointed in Norfolk and surrounding towns for this purpose.

L. M. COWARDIN,
Chairman Surgical Clinic,

NORTHERN INDIANA DENTAL SOCIETY.

The nineteenth annual meeting of the Northern Indiana Dental Society will be held at Peru, September 17th and 18th. The Northern Indiana is noted for its good meetings, and this promises to be even better than heretofore.

W. R. MEEKER, Sec'y.

JOINT MEETING OF DISTRICT SOCIETIES.

There will be a joint meeting of the third, fourth and fifth district dental societies of the state of New York, held at Red Men's Hall, Schenectady, N. Y., on Tuesday and Wednesday, October 15 and 16, 1907.

A. S. MOORE,
Sec'y of Fourth District.

PROGRAM FOR THE JAMESTOWN DENTAL CONVENTION, NORFOLK, VA., SEPTEMBER 10-11-12

Officers.

Honorable president, Dr. J. Y. Crawford, Nashville, Tenn.; president, Dr. V. E. Turner, Raleigh, N. C.; first vice-president. Dr. B. Holly Smith, Baltimore, Md.; secretary-general, Dr. George F. Keesee, Richmond, Va.; treasurer, Dr. Mark F. Finley, Washington, D. C.

PROGRAM.

Tuesday, September 10, 1907, 9:30 A. M.

Meeting called to order by Dr. Burton Lee Thorpe, St. Louis, Mo., chairman commitee on organization.

Invocation—Rev. Dr. C. L. Bane, pastor Memorial M. E. church, Norfolk, Va.

Address of welcome—Hon. Harry St. George Tucker, president Jamestown Exposition Co.

Address of welcome—Dr. Edward Eggleston, president Virginia State Dental Association.

Address of welcome—Dr. Joseph W. Eggleston, Richmond, Va., in behalf of the profession of Virginia.

Address of welcome—Dr. W. G. Mason, Tampa, Fla., president Southern Branch, N. D. A.

Address of welcome—Dr. J. Y. Crawford, Nashville, Tenn., in behalf of the profession of the south.

Response to the addresses of welcome—Dr. J. D. Patterson, Kansas City, Mo.

Address by the president—Dr. V. E. Turner, Raleigh, N. C.

Tuesday Afternoon Session, 2:30.

Clinics in Convention Hall; Dr. Clarence J. Grieves, Baltimore, Md., chairman.

Tuesday Evening September 10, 8:00.

Smoker at Inside Inn, Dr. B. Holly Smith, chairman, Baltimore, Md.

Wednesday, September 11, 9:30 A. M.

Illustrated paper—Dr. F. T. Van Woert, Brooklyn, N. Y., "Is the Cemented Filling the Filling of the Future?"

Discussion opened by Dr. Wm. K. Slater, Knoxville, Tenn.; Dr. Craig M. Work.

Illustrated lecture—Dr. Chas. L. Alexander, Charlotte, N. C., "Gold Inlays."

Discussion opened by Dr. J. G. Fife, Dallas, Tex.; Dr. H. Herbert Johnson, Macon, Ga.

Wednesday Afternoon, September 11, 2:30.

Clinics in Convention Hall.

Wednesday, 8 P. M.

Illustrated lecture—Dr. R. Ottolengui, New York City, N. Y., "The Purposes and Accomplishments of Modern Orthodontia."

Discussion opened by Dr. W. O. Talbot, New Orleans, La.; Dr. Henry W. Morgan, Nashville, Tenn.

Thursday, September 12, 1907, 9 A. M. to 1 P. M.

Clinics in Convention Hall.

Thursday, 2:30 P. M.

Special clinical lecture by Dr.. W. H. Taggart, Chicago, "Cast Gold Inlays, Bridges and Plates."

Discussion, opened by Dr. J. H. Lorenz and Dr. L. E. Custer.

A cordial invitation is extended to all ethical dentists to become members and attend the convention.

Committee on Organization.

Dr. Burton Lee Thorpe, St. Louis, Mo., chairman; Dr. Thos. P. Hinman, Atlanta, Ga., vice-chairman; Dr. H. Wood Campbell, Suffolk, Va., secretary; Dr. F W. Stiff, Richmond, Va., treasurer; Dr. R. H. Walker, Norfolk, Va.; Dr. J. E. Chace, Ocala, Fla.; Dr. Clarence J. Grieves, Baltimore, Md.

All clinics, lectures and meetings of the Jamestown Dental Convention will be held in the Convention Hall, on the left of the main entrance to the Exposition grounds.

Admittance to this building can be had either from the outside or inside of the grounds.

H. WOOD CAMPBELL,
Secretary Organization Committee.

AFTERMATH

South Dakota Examinations.—Eight passed, six failed.

Vermont Dental Examinations.—Four passed, nine failed.

Rhode Island Examinations.—Thirteen passed, seven failed.

Pennsylvania Dental Examination.—One hundred and ninety-six passed, 22 failed.

Dentist Fined.—S. H. B. Cochran was fined $50 by Justice Summerfield for practicing dentistry at Sawtelle, Cal., without a license

Ohio Dental Examinations.—Seventy-five passed, twenty-two failed. Of those who secure the coveted licenses, as dentists, two are women.

South Carolina Dentists have decided to prosecute all those who engage in the illegal practice of dentistry. The convention voted $250 for the prosecution of such cases.

Fires.—Office of Dr. Leslie C. Bell, Waterbury, Conn., damaged some by smoke and water, July 7; covered by insurance. Office of Dr. J. H. Dreher, Wilmington, N. C., damaged by fire, July 31.

Marriages.—Dr. Alfred A. Frost, Salem, N. H., and Mrs. Elizabeth Hunt, Roslindale, N. H., July 10. Dr. J. Evans Wright, Moncton, Canada, and Miss Carrie W. Locke, Melrose, Mass., July 15.

Maine Dental Society.—Elected the following officers: President. W. S. Miller, Fairfield; vice-president, W. R. Bibber, Eastport; secretary, H. A. Kelley, Portland; treasurer, E. J. Roberts, Augusta.

National Association of Dental Faculties.—Elected the following officers: President, M. W. Foster, Baltimore; vice-president, H B. Tileston, Louisville; secretary, G. E. Hunt, Indianapolis; treasurer, H. R. Jewett, Atlanta.

Dentist Drowns.—Dr. John Clendenning, a dentist, of Detroit. Mich., was drowned in Lake Huron, off Gratiot Beach, July 2. His boat was struck by a big wave and capsized. The body was washed ashore two hours after the accident.

New U. of M. Building Started.—Work on the new dental building of the U. of M. was commenced July 25. Before it could be started, Secretary Wade had to pass through the formality of swearing that the university was worth at least $2,000.

Sixth Congressional District Dental Association (Alabama).—Elected the following officers: Dr. H. J. Feltus, of Baton Rouge, president; Dr. R. E. Nettles, of Denham Springs, vice-president, and Dr. M. F. Bloomenstiel, of Baton Rouge, secretary and treasurer.

Tennessee State Dental Board.—Elected the following officers· President, C. A. Sevier, Jackson; first vice-president, John R. Beach, Clarksville; second vice-president, C. H. Taylor, Memphis; recording secretary, C. A. Tavel, Memphis; treasurer, S. L. Rich, Nashville.

Appoints Board of Examiners.—Governor Warner, of Michigan, has appointed, under the new dental law, the following board of examiners: C. O. Oakman, Detroit, five years; A. W. Haidle, Negaunee, four years; Addison B. Robinson, Grand Rapids, three years.

Utah State Dental Board.—Elected the following officers: President, Dr. C. E. M. Loux, Pocatello; secretary-treasurer, Dr. E. I. Burns, Boise. In addition to the above, the following were chosen members of the board: Dr. S. A. Mulkey, of Soldier; Dr. T. Boyd McBride of Moscow; Dr. William Youngberg, of Coeur d'Alene.

National Dental Examiners' Association.—Elected the following officers: President, Frank O. Hetrick, Ottawa, Kan.; vice-presidents, F. A. Shotwell, Rogersville, Tenn.; F. R. Henshaw, Middletown, Ind.; J. J. Wright, Milwaukee, Wis. Charles A. Meeker, Newark, N. J., was re-elected secretary-treasurer, which position he has filled for the past 14 years.

Dentist Killed in Auto Accident.—Dr. James H. Brookins, 26 years old, a well-known dentist of Anderson, Ind., was almost instantly killed, and Elmer East, a hardware merchant, also of this city, was severely hurt in a collision of their automobile with an interurban car of the Indiana Union Traction line at Lafontaine, July 18.

Free Dentistry Scholarship.—In accordance with the recommendation of the faculty of the dental department of the Medico-Chirurgical College, the board of trustees at its recent meeting decided to grant two scholarships in dentistry to graduates of the Philadelphia public schools. The recipients of these scholarships are to be named by the board of trustees of the college upon proper recommendation.

A Testimonial to Dr. L. P. Haskell.—A testimonial banquet was tendered to Dr. Loomis P. Haskell, of Chicago, by the dentists of Bangor, Me., July 23, twenty dentists being present. Dr. Haskell was born in Bangor, 81 years ago, and today he is one of the most eminent dentists in the country. He recently addressed the Maine Dental Society in Rockland and decided to visit his old home in Bangor.

A Dentist Saves Human Lives.—Dr. Harry C. Newgord, dentist, put in a busy day recently at Lake Minnetonka, Minn. In the afternoon, during the boat races, he saved a fellow-sailor from beneath his capsized boat. In the evening, while watching the storm from the porch of the Minnetonka Yacht club, he saw a small catboat with two occupants capsize. He put out in a rowboat, reaching the overturned craft just as the men were about to give up.

Dentist Found Dead.—July 4, Dr. Frank Strickland, a dentist from Williams, Colleton county, South Carolina, was found dead in his room at Racy, a point on the St. John's river, 15 miles north of Palatka, where he, together with a party, was on a hunting trip. It is not known just what caused his death. An empty carbolic acid bottle was nearby where his body was lying, but no signs of acid burns were apparent about his mouth or throat.

Dentist and Family Lost.—Dr. B. C. Best, San Francisco, Cal., was a passenger on the ill-fated vessel Columbia, and was among those lost. With him were his wife, daughter and mother-in-law, Mrs. Sprague, all of whom shared his fate. Dr. Best was a director of the College of Physicians and Surgeons and one of the best-known dentists in the city. He was on his way to Coos Bay, where he was to spend a vacation with his wife and daughter. Mrs. Sprague was on her way to Yankton, Dakota.

Dentists Elect Negro as Member.—With an overwhelming majority, Dr. John D. Ballard, the colored dentist of Orange, was elected to membership in the New Jersey Dental Society at its meeting held at Asbury Park. His election was the feature of the session and the announcement of the vote was received with applause. The officers elected at the meeting are as follows: President, Dr. Walter Woolsey, of Elizabeth; vice-president, Dr. Frank Gregory, of Newark; secretary, Dr. Charles A. Meeker, of Newark; treasurer, Dr. H. A. Hull, of New Brunswick.

Reciprocity Discussed at National Meeting.—Delegates of the National Association of Dental Examiners from all over the United States met in convention at Minneapolis, Minn., July 26, to discuss matters of interest to the members. The meeting was called to order by President G. D. Mitchell, who read a paper on "Reciprocity". The keynote of the president's address was to the effect that there should be more uniformity in the examinations in the various states, so that if a man passes an examination in one state entitling him to practice dentistry, he is also eligible to practice in any other state without having to pass another examination.

Honor Horace Hayden.—Citizens of Windsor, Conn., welcome movement for monument. President A. E. Carey, of the Hartford Dental Society, presided over a meeting held July 12 in the Windsor town hall, to discuss the matter of erecting a monument to Dr. Horace Hayden, who was a native of the town. The following resolution was passed: That citizens of the town of Windsor welcome the monument to be erected by the Hartford Dental Association in memory of Dr. Horace Hayden, to be placed on Palisado green, if agreeable to the citizens nearby. The selectmen were appointed a committee to report if the location could be used.

Deaths.—Dr. John H. Smack, Brooklyn, N. Y., June 4, aged 55 years. Dr. J. P. Tillman, Kanosh, Utah, June 28, of alcoholism Dr. Geo. Koch, Bushwick, N. Y., June 29, of dropsy, aged 47 years. Dr. Albert S. Rabenold, Allentown, Pa., July 6, of heart failure, aged 47 years. Dr. Sullivan L. Ward, Lowell, Mass., July 11. Dr. J. E. Robinson, Cleveland, O., July 13, at Brooklyn, N. Y., aged 73 years. Dr. E. H. Dillingham, West Liberty, Ia., July 15, of congestion of the lungs, aged 69 years. Dr. James O. Dunn, Chicago, Ill., July 18, of kidney trouble, aged 32 years. Dr. Walter C. Spooner, Brooklyn, N. Y., July 20, aged 52 years. Dr. Richard Reynolds, Woburn, Mass., drowned July 25, aged 28 years. Dr. Antony Varicle, Seattle, Wash., July 26.

At the Dentists'.—"Do you give gas here?" asked a wild-looking man who rushed into a dentist's. "We do," replied the dentist. "Does it put a fellow to sleep?" "It does." "Sound asleep, so you can't wake him up?" "Yes." "You could break his jaw or black his eye and he wouldn't feel it?" "He would know nothing about it." "How long does he sleep?" "The physical insensibility produced by inhaling the gas lasts a minute, or probably a little less." "I expect that's long enough. Got it all ready for a fellow to take?" "Yes. Take a seat in this chair and show me your tooth." "Tooth nothing!" said the excited caller, beginning rapidly to remove his coat and vest. "I want you to pull a porous plaster off my back."

The National Dental Association's Officers, 1907-08. The National Dental Association, at its eleventh annual session, Minneapolis, July 31st, elected the following officers for the ensuing year: President, Wm. Carr, New York city; vice-president for the east, Wilbur F. Litch, Philadelphia, Pa.; vice-president for the south, J. P. Gray, Nashville, Tenn.; vice-president for the west, Alfred Owre, Minneapolis, Minn.; corresponding secretary, Burton Lee Thorpe, St. Louis, Mo.; recording secretary, Chas. Butler, Buffalo, N. Y.; treasurer, A. S. Melendy, Knoxville, Tenn. Executive committee, new members—L. Meisenburger, Buffalo, N. Y.; F. B. Kremer, Minneapolis, Minn.; M. F. Finley, Washington, D C. Executive council—H. J. Burkhart, chairman, Batavia, N. Y.; J. Y. Crawford, Nashville, Tenn; A. H. Peck, Chicago, Ill; F. O. Hetrick, Ottawa, Kan.; B. Holly Smith, Baltimore, Md. Next place of meeting, Boston, 1908.

How the Kaiser Will Protect His Subjects' Teeth.—In the German city of Freiburg, the municipality has established a free dental clinic, where not only the teeth of children are carefully treated, but instruction is imparted to the children in whatever knowledge is essential concerning teeth and their preservation. The dentist at the head of this school clinic examines all the children in the city, both in their homes and in the public schools. A report on such examinations is sent to the parents, who are asked to send their children to the school dental clinic for free treatment. Those children having ten or more poor teeth are first treated, an exception being made in the higher classes, where those with only slight defects are to be treated, so that they will leave the public schools with sound teeth. After these worst cases have been attended to, all other children with defective teeth are to be treated, the younger ones given the preference. The treatment of the teeth includes extraction, filling, crowning, etc. There is no actual instruction in dental hygiene, but at the opening of the dental clinic the teachers explain its objects and workings to the children. The "zanhukarte" (tooth report card) contains on the reverse side instructions as to the care of the teeth.

Robberies.—Dr. J. W. Kleeber, Oshkosh, Wis., $10 worth of crown gold, a silver thimble, and several other small articles of value, July 28. About $250 worth of gold leaf and platinum has been stolen from Lansing, Mich., dentists. Drs. J. H. and J. W Gould, Worcester, Mass., lost about $15 worth of gold July 21. Gold and instruments were also taken from the offices of F. E. Lamson and F. A. Hatch. Dr. Chas. R. Sullivan, Springfield, Mass., $50 worth of gold plate, July 10. Dr. J. W. McCracken, Oakland, Cal., $30 worth of gold and some surgical instruments. Dr. W. H. Lind, Milwaukee, Wis., $2 worth of gold, July 12. Dr. M. S. Rees, Toledo, Ohio, quantity of dental supplies, July 20. Gold to the value of $60 taken from Marshfield, Wis., dentists. Dr. Francis J. Quinn, Muskegon, Mich., $40 worth of gold leaf, July 24. Gold watch, rings and gold scrap to the value of $70 were taken from the office of Dr. W. H. Gobey, Columbus, O., July 25. About $300 worth of gold and dental supplies was taken from other Columbus dentists. Dr. C. H. Tellman, Muskegon, Mich, gold fillings and porcelain teeth valued at $75, July 24. Dr. Herbert Tannehill, Muskegon, $50 worth of gold fillings. Drs. B. S. Scott and J. F. Austin, Tacoma, Wash., $6 in money and $30 in gold leaf, July 25. Gold crowns, bridge-work and gold fillings to the value of $40, taken from the office of Dr. Wm. a Loud, Brockton, Mass., July 28. Dr. Cunningham, Manistee, Mich., $75 worth of gold.

REGULAR CONTRIBUTIONS

PYORRHOEA ALVEOLARIS.*

By Carl D. Lucas, D. D. S., Indianapolis, Indiana.

Disease is always the resultant of the action of a series of factors of unequal value, therefore to treat the disease the individual must be treated to reestablish normal physiological functions.

If the nervous system is in a state of perfect equilibrium and the functions of digestion, assimilation and excretion are all being normally performed, the oral mucous membrane and the pericemental membrane are in a condition of perfect health. If such a healthy condition does not exist in the oral cavity it is significant of the fact that some function or functions in physiological metabolism are at variance.

If systematic prophylactic care of the teeth is not indulged by the patient in accordance with instructions from his dentist, a ptyalogenic calcic deposit at the cervical line is usually the result. Even though the patient may regularly and diligently apply the tooth brush, in many cases a ptyalogenic calicic deposit precipitates upon the peripheral cervical cementum of the tooth due to a predisposition to precipitation of the calcic salts of the saliva, and unless the patient resorts frequently to the operative prophylactic treatment for the removal of the deposit, ptyalogenic calcic pericementitis is the result. This inflammation of the pericemental membrane produced by the constant irritant lowers the resistance of the membrane.

All metabolism is a continuous attempt at establishment of equilibrium by enzymes, perpetuated by prevention of attainment of actual equilibrium through destruction of some of the participating substance by oxidation or other chemical process, or by removal from the cell, or entrance into it of materials which overbalance one side of the equation.

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*Read before the Kentucky State Dental Association, May, 1907.

During life the cells of the tissues are constantly causing metabolic changes in the lymphatic constituents and these changes consist chiefly in breaking down large molecules of proteids, carbohydrates and fats into smaller molecules.

When the excretory organs do not perform their normal functions in accordance with physiological metabolism, the catabolin of destructive metabolism is partly absorbed by the tissues as nucleoproteids, or salts formed through combination of proteids with nucleic acid. As a result of this imperfect equilibrium in metabolism the oxidizing ferment that seems to act specifically on the purin bases of the nucleic acids changes them into adenin and guanin which are varieties of leukomains which are basic chemical compounds closely resembling vegetable alkaloids produced by metabolic activity of the organism. These leukomains are acted upon by other specific intercellular enzymes which through hydrolysis and liberation of ammonia (deamidization) convert them into xanthyn and hypoxanthyn, which are purin bases. The hypoxanthyn is converted into xanthyn and oxidizing enzyme converts the xanthyn into uric acid.

Uric acid can be formed equally as well from free purin bases as from purin bases liberated from nucleic acid, for a large proportion of uric acid arising during physiological metabolism (endogenous) comes from the free hypoxanthyn of the muscles. Purin bases and the necessary oxidizing enzymes are present in many if not all varieties of cells. Certainly all the chief visceral tissues and the muscles are capable of forming uric acid. Of the purin bases taken in food by omnivora, one-half appears in the urine as uric acid.

The destruction of uric acid depends upon oxidation and is therefore but a continuation of the process by which purin bases are converted into uric acid. Destruction occurs chiefly in the liver, kidneys and muscles; little or none being destroyed in the lungs, spleen, or blood. The muscles destroy most; the kidneys less and the liver destroys the least amount, Destruction is accomplished by specific uricolytic enzymes which are oxidizing enzymes, although some other enzymes must first split the uric acid molecule to prepare it for oxidation.

The presence of the endogenous uric acid formed from the nucleoproteids of the body cells during catabolism, combined with the exogenous uric acid formed from the nucleoproteids of the food ingested, induces an osmosis of lymh into the tissues in response to the formation of crystalloids outside the vessels. By no means is all the fluid that escapes from the vessels in osmosis, nor all the products of cell metabolism such as uric acid, carried away by the lymphatics; perhaps the greater part of the products of cellular metabolism is absorbed into the capillaries directly. The nature of the mechanism by which fluids and products of metabolism are taken into the blood vessels is still unknown. It is easily understood how coloring matters injected into the tissues diffuse directly through the capillary wall, because they are more concentrated at the point of injection than is the blood. But how a solution of the same concentration as that of the blood can enter the blood vessel is difficult to explain.

After the uric acid is absorbed through the capillary wall into the blood stream it is kept in solution possibly by some derivative of nuclenic acid. In the blood uric acid exists in the form of a quadriurate, a substance that is soluble one part to five hundred parts of serum, that in an alkaline medium takes up another atom of base and passes into a biurate which is almost insoluble (1 to 10,000 parts serum). As a biurate it combines with the sodium salts of the blood and as a sodium biurate it is in a condition to be precipitated under conditions of a high percentage of uric acid and sodium salts in solution.

Uratic deposit is usually found in white fibrous tissue which is low in resistance due to a traumatic injury or the presence of a constant irritant which lowers the resistance of the tissue.

Having the pericemental membrane in a low state of resistance due to ptyalogenic calcic pericementitis and the individual predisposed to uratosis we have a typical field for the deposition of crystalline urates. Salts of the urates are deposited first in the interstices of the membrane which further lowers the resistance of the membrane inviting more extensive deposition until finally the deposit is crystallized upon the cementum of the tooth as irregular, mortar-like nodules. By their constant contact with the pericementum and the constant movement of the tooth during mastication the resistance of the pericemental membrane is lessened and we have a chronic inflammatory condition of the membrane, known as haematogenic calcic pericementitis, signifying that its origin is constitutional and associated with some modification of the normal condition of the blood plasma. This irritation injures the capillary walls of the membrane, increases the osmotic pressure in the tissue and causes the escape of blood plasma into the territory. This causes a change in the chemical composition of the blood which establishes a communication between this point and the leucocytes in the circulating blood. This communication is accomplished by chemical agencies, and is called chemotaxis.

Haematogenic calcic pericementitis, being a chronic inflammation, eventually causes suppuration, the liquefaction of the cells and tissue elements of the membrane finally extending to the alveolar process.

Because of its method of production the pus formed consists of, first, dead leucocytes and tissue cells, second, the exuded decomposing blood plasma, and third, dead pus producing microorganisms. Thus a pus pocket is formed in the region of the haematogenic calcic deposit.

The treatment of pyorrhea should consist first in the surgical removal of the irritant and the polishing of the cementum. Second, a constitutional treatment which will tone the excretory organs to normal excretory function. It is not intended to go into the treatment in this discussion, but to stimulate a discussion which may help to solve the mystery of the etiolgy of pyorrhea alveolaris.

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APPLICATION OF HIGH PRESSURE ANESTHESIA.*

By C. G. Myers, D. D. S., Cleveland, Ohio.

At a meeting of the Northern Ohio Dental Society, June, 1904, a clinic was given on a new method of alleviating the pain incident to dental operations. The clinician was enthusiastic, as it was the culmination of years of study and work in this field and the onlookers seemed equally enthusiastic. The discoverer of this method did not call it "high-pressure anesthesia," but "peridentinal anesthesia," meaning anesthesia through the dentinal tubuli. It seems that the naming of his child was denied him. It may be that its paternity may also be questioned. A great deal of time and a great deal of money has been spent during the past year in trying to place this method before the dental profession in a proper light. To say that the results have been discouraging would be putting it mildly. In fact, the antagonism that has been encountered has been surprising. This has been called everything from the greatest discovery in dentistry in twenty-five years, to a "fake." More frequently the latter. Not one out of one hundred who have tried this method has had the success he should. Why? Because they would not take the time or trouble to master one of the simplest operations imaginable. Why would they not take the time or trouble to master this? Because the average dentist is not looking for humanitarian methods. They may interest him for a time as a novelty, but only so long as they remain a novelty. It is not the dentist, but the patient, who is looking for pain-relieving methods. Hence the success of the so-called painless dentists.

It has fallen to the writer's lot to meet, personally, between four and five thousand dentists during the past year and correspond with probably as many more. The above conclusions are the result of a study of dentists. No method, no instrument, will accomplish its work without there is intelligence back of it. Please do not mistake, it is intelligence and not conceit of egotism that is needed. You may ask what is meant by this statement. One man, by close and long application, is enabled to accomplish certain results. Another, after one or two trials, is not able to get the same results. What is the consequence? No. 2 pronounces the plan impracticable and condemns it. In looking back through dentistry's history, has this not been true of every innovation? It is not confined to the method we have under consideration. The writer was requested by the committee on operative dentistry to prepare a paper on the subject we have now under consideration, for the International Dental Congress held in St. Louis in 1904. He did so and submitted same to the committee. It was returned to him and it was ruled out of the meeting because an instrument he had devised for performing the operation was marked "patent applied for." Now, mind you, the paper was on the method, and was entitled "Peridental Anesthesia." It had nothing whatever to do with the instrument. The only dental journal to even give this method a passing notice was the Stomatologist, in which Doctor Guilford refers to the stand taken by the committee of the International Dental Congress and states that he saw more than a dozen patentees exhibiting their wares in the clinic room, and he adds, "Such are some of the inconsistencies one meets with in life."

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*Read before the Kentucky State Dental Association, Louisville, Ky., May, 1907.

We will let bygones be bygones and get down to the practical part of this business. The writer experimented for six years to find some means by which the nozzle of a powerful forced-feed syringe could be kept in contact with the dentine of a tooth, for he felt that if such means could be discovered and a cocaine solution could be forcibly injected against such dentine it would follow the tubuli to the pulp. The only aim at that time was to densensitize the dentine. It was not until the tapered nozzle was thought of and tried that success was attained.

GETTING ABSOLUTE CONTACT OF NOZZLE.

Results were obtained in the very simplest manner possible. So the tapered point, fitting a small aperture drilled to the dentine, solved the problem. Any mechanic knows that the taper fit is the best known. It was thought at first that this aperture could be made through the decay in cavity to normal dentine and application made in this way. It was found that this was impossible in the great majority of cases owing to the pain caused, as dentine is more sensitive under decay and because contents of the tubuli leading from the cavity to pulp canal have in most cases undergone a change that prevents the passage of a solution through tubuli regardless of the pressure exerted. Make pit for reception of tapered nozzle through the enamel, which is not sensitive, until a sensitive point is reached, which means that normal or healthy dentine has been uncovered. In drilling this small aperture through enamel, which is quite brittle, small pieces may be chipped from edge of aperture or if the tapered nozzle is forced against such frail edges, it will cause a slight chipping or fracture. This will preclude the possibility of getting a tight joint, which is absolutely necessary. With a tapered or round bur larger than the aperture, it is necessary to slightly countersink the opening of the drill-hole and in this way smooth the edges of same. It is now possible to get absolute contact, without leakage, if the tapered nozzle is in proper shape. It is desirable that the pit be made on some plain surface of the tooth, as it is very difficult to form pit of proper shape if it is made in a groove or depression of tooth.

APPLICATION OF METHOD TO SENSITIVE DENTINE.

For obtunding sensitive dentine, a small quantity of the cocaine solution is taken into cylinder or barrel of syringe, and tapered nozzle placed in drilled aperture. Test to see if there is a perfect joint between tooth and injecting instrument. When contact without leakage has been secured, continued pressure from one to one and one-half minutes will usually be sufficient to send a minute quantity of the obtunding solution through the tubuli onto the surface of the pulp and cause a surface anesthesia of same, cutting off sensation from all parts of the tooth corresponding to the surface of pulp covered by cocaine solution. If pressure is continued long enough, the entire pulp will be surrounded by the obtunding solution.

We find that the obtunding effect is only obtained when pulp is reached by obtundent, and it is then so pronounced that applications of extreme heat and cold are not felt, as well as the excavation of cavity. For grinding teeth with living pulps for crowning, for those who are guilty of such practice, proceed the same as for excavating sensitive dentine.

HOW TO REMOVE PULP.

To remove a pulp not exposed, drill pit through enamel and apply obtundent until dentine is obtunded. Then continue pit until pulp is reached, which is indicated by a slight sensation to patient. Now apply obtundent again and very gently force obtunding solution into pulp cavity until no sensation is felt by patient from force of liquid against pulp. Stop immediately when this point is reached and pulp may be removed. If the pulp is exposed, flow cement over exposure and proceed exactly as if it was not exposed. We have found that the best obtundent is a five per cent. cocaine solution. A dentist, who I was very anxious should meet with success, informed me that the results he was getting were very unsatisfactory. I asked him what percentage of cocaine he was using and he told me a saturated solution. "There is your trouble," I told him. "A saturated solution of cocaine is like syrup and it will be impossible to force such a thick fluid through such small tubuli." He has reported success since. The first question that is asked by those to whom this method is first shown is, "What effect will it have on the pulp?" The only answer I can give, and probably it will be the most satisfactory, is this: The method has been in use two years and a half in thousands of cases, by dentists all over this country and Europe. In my own experience I have noticed no ill effects and only one dentist, a gentleman from Cincinnati, has reported the death of two pulps, but he says that he does not know positively that death was due to this cause. It is estimated that about one-fiftieth part of a drop of the cocaine solution reaches the pulp, so we can hardly look for deleterious results from so small an amount. We also find that the anesthetic effect lasts from two to three hours, when tooth returns to its normal sensitive condition. As I have intimated above, clinical results are more satisfactory than theoretical, and up to this time they have not been such as to condemn the method. I was warned by the committee, through whose courtesy I have prepared this paper, that I was not to mention instruments. I assure the committee that the warning was unnecessary, for it has not been particularly pleasing to me to be introduced at the different meetings I have attended as the man who invented the **squirt-gun.** I wish to emphasize a few points for those who wish to apply this method successfully:

First: See that the injector you are using does not leak, and,

Second: That the tapered point or nozzle is in good condition.

Third: See that aperture of drill-hole in tooth is perfectly smooth.

Fourth: Do not employ too strong cocaine solutions.

Fifth: Be sure drill-hole reaches the dentine.

Sixth: In removing pulps, after pulp cavity has been reached, proceed gently and with great caution.

Seventh: If you do not succeed the first or second time, try again, as this method once mastered will prove a great boon to yourselves as well as to your patients.

Eighth: This method when mastered will enable one to get satisfactory results in every case.

THE IMPORTANCE OF DETAIL.*

By C. W. Meguiar, D. D. S.

He who would succeed in great things must first succeed in little things is equivalent to stating that to successfully accomplish an undertaking is to first master its details. We can easily imagine the outline of a great material structure, system or political government, but we can't comprehend the creation of either without consideration of the details necessary to its accomplishment.

The mind in conception and the hand in execution often work in an opposite way, for, note that Solomon in his vision saw a beautiful temple, a picture in his mind. It was so grand and magnificent that he theoretically dissected it from summit to base and mastered its construction entirely, even unto its uttermost detail. Then, mark you, in its physical construction he began first the minutia and details, modeled and fitted its component parts and following stone upon stone and pillar upon pillar builded unto his God a palace which in its entirety was dedicated as he first saw it in his vision. That is to say, mentally his first vision was of the temple complete; physically, his first labors were of the details. Yet, Solomon, in building his beautiful temple accomplished not more in wonderful detail than did his Creator when he builded in the mouth of Solomon a tooth. "Why, I can give you all the details of a tooth in five minutes," one may say. But can you make a tooth? You may extract one, counting for naught its vitality, and within an extreme lifetime it is safe to say you cannot duplicate it, inanimate thing that it is. You cannot even make a substitute that is its equal because it will not perform the functions of the original. Well, why is it so? It is because you have not and cannot master the details. Only in appearance can you equal the original and even then eye is seldom deceived. I dare say that sixty per cent. of porcelain-crowned teeth in the mouths of patients can be detected at arm's length by any intelligent non-practitioner with goods eyes, and if he should examine closely for bad articulation, mal-occlusion, inadequate or overhanging base and misfits in general the percentage will probably reach seventy-five, while a competent dental critic would accept about one in ten and then have doubts unless he had seen the operations in detail. "Why do the dental boards issue licenses to such applicants?" some one may ask. Because successful applicants do not perform such operations before the board, is the answer. They are on their good behavior and will sometimes spend half a day in an operation that they will afterwards often perform for a patient in half an hour. If one is proficient in details he will of necessity be proficient in results, but he must never become indifferent to the one if he expects success in the other.

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*Read before the Kentucky State Dental Association, Louisville, Ky., May, 1907.

Now, I would make a plea for the importance of detail in this day of boasted advancement in dental art. I would appeal first to dental instructors, members of faculties, who have the laying of the primary facts and principles before their pupils, and I would applaud these teachers heartily for their painstaking care in making plain the smallest details in the application of such principles. I would encourage the teachers and say, "That's right; don't try to stuff a ten month's course into that student in seven months by cramming but teach him a few things well." And should a faculty man say to me, "I have never boasted before the class of my own great practice and doings, but instead, I insist that a comprehensive knowledge and minutia and details is absolutely necessary to successful execution," I would pat him on the back and say "Well done. Your alumni will not wait for letters and cards soliciting students; they will send them voluntarily as an expression of gratitude for the instruction you have given."

Then, I would appeal to students and impress upon them the great importance of making haste slowly by omitting no part or particular that will contribute to the ultimate success of their work, and I would admonish them to continue in such method until the habit of detail becomes the habit of success. I would cautioin them against haste, against slighting and negligence, against inferior instruments, materials and service, and I would remind them that to voluntarily remove one's own defective work and replace it properly is a commendable thing in the eyes of the patient.

Artisans are born, not made, and it is extremely unfortunate that an individual should choose a vocation for which he has no natural qualifications.

One reasons that he should like to be a dentist simply because it seems to be profitable; another, simply because he has "mixing" qualities and makes friends readily, and still another simply because it "looks easy!" May the Lord deliver credulous humanity from the hands of these, for they are the wreckers of ideals, the crimson stains on the dental profession whose trails lead to quackery and to the houses of false promise where matters of detail are only practiced as a means of deception.

It is at least comforting in surveying the situation to find a great many prominent and leading men in the ranks who have achieved success by adopting the policy of employing few instruments and knowing how to use them, few materials and knowing they are reliable, few words and no vain promises, few theories and forgetting most of them, and making good use of all the facts and details obtainable.

The subject I have chosen is alluring to me and the things I might say crowd upon me so fast that the range could easily embrace the whole scope of dental practice, but for the sake of brevity I submit the subject for discussion.

ORAL PROPHYLAXIS, Or, RUBBING, POLISHING AND WASHING THE SUPERFICIAL TISSUES OF THE MOUTH.*

By C. M. Wright, D. D. S., Cincinnati, Ohio.

I esteem it an honor to be asked by the Kentucky State Society to read a paper before it, and especially on the subject of "Prophylaxis".

I should be willing, however, at this time, after several years' general use of the term "prophylaxis," to see the name drop into an "innocuous desuetude" among dentists. It has lost its place and become simply a term for a modern idea of thoroughness, not, as the term implies, along the line of prevention, but along the line of curative dentistry or surgical therapeutics.

To me, the distinct feature of the two departments, viz., to prevent, or, to cure, are very clear; and when speakers, writers and editors of dental journals use such expressions as "prophylaxis treatment," I must confess that I feel a little dizzy. When they go on to describe "prophylaxis treatment" for long-standing pathological conditions, like chronic suppurative inflammations, or any other persisting disease of the soft or hard tissues of the oral cavity, I am convinced that either I have never had a clear conception of the terms "prophylactic" and "prophylaxis," or that these names have lost their places in the scramble, and need new definitions in the medical lexicon. Therefore, I should be glad, if we could go back to the plain English term—prevent, or preventive. Preventive dentistry, then, would be a dentistry for the purpose of preventing diseases of the oral cavity, for the prevention of caries and erosions of the teeth, and for the prevention of diseases of the gums or tissues surrounding and connected with the roots of the teeth like interstitial gingivitis (Talbot) and the pyorrheal and necrobiotic stages of this bunch of inflammatory phenomena, as well as of atrophies and other degenerative tendencies of the gums.

I should be glad to have it clearly understood that the new era of so-called oral prophylaxis means that we, as dentists, now recognize the necessity for special and intelligently applied measures by a trained hand, upon teeth and gums, while the teeth and gums are normal and healthy, to keep them so and to prevent, to hinder, to come before the attacks or encroachments of the enemies which are lying in wait to produce caries and interstitial gingivitis. Our entire attention up to the present has been centered on the enemy after he has gained a foothold and commenced his destructive work. We are familiar with his methods and the results. We have studied Dental Caries and Interstitial Gingivitis, and have devised ingenious and fairly successful methods, by fillings and by general surgery, of arresting the attacks and partially restoring the damaged tissues.

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*Read before the Kentucky State Dental Association, Louisville, Ky., May 1907.

Prophylaxis must come before these attacks, as a barricade and also after the return to nearly normal conditions. It must come to hinder a recurrence or another attack.

These preventive measures are, to my mind, included under three heads: rubbing (or massage), polishing, and washing. After a while, prevention may include another department—that of systemic hygiene, with food, water, air and exercise as factors. At present we must depend upon rubbing, polishing and washing, or local measures. This is not dental surgery. It is not the duty of the dental surgeon to perform this sort of work, but it is his bounden duty, his special province, to see that it shall be done. This is the new era in dentistry; that the dentist, knowing, as he now does, the vital importance of this sort of care of the mouth and teeth, shall provide means for its accomplishment for his patients and mankind.

When the dental surgeon cures caries by his operative measures of filling, and cures gingivitis by his surgery on tartars and gum tissues and gingival pocket, and corrects malocclusions and the results of developmental errors in the maxillae by ingenious orthopedic appliances, and restores damaged parts and lost parts of an organ by crowns, bridges and plates —when, in other words, by his marvelous skill in dentistry proper (which has developed so rapidly on account of his earnest devotion to this part of his duty), the dentist restores the physiological functions of mastication and respiration to their normal places, and changes a condition of oral disease to one of health, and by these operations preserves the health of man, he is practicing preventive medicine and not preventive dentistry.

His object is, by the surgical and mechanical means of thorough dentistry, to put in order organs which are valuable aids in the digestive processes and in the internal respiratory metabolism of every cell in the body.

The dentist knows as well as Osler that, in the way of physiological living, men should be "chewers and not bolters" of their food.

He knows that Cannon, and Chittenden, and Sir Michael Foster, and the layman Fletcher have proven by their carefully-planned and ingenious experiments that the thorough and prolonged mastication and insalivation of foodstuffs are of infinite value to the general health of man; that diseases like pyloric cancer, intestinal ulcerations and digestive and absorbtive disturbances in the glands and cells of the alimentary canal may be prevented by thorough grinding and softening of foodstuffs by sound and well-arranged teeth and healthy oral tissues. It is the business of dentists to put mouths into this condition.

The dentist knows as well as Hunter, the author of "Oral Sepsis as a Cause of Disease," that danger lies in diseases of the mouth—to the individual himself through bacterial and auto-infectional causes and to those with whom he may come in contact, or "within twenty-two feet of". Remote diseases, like pin carditis, neuritis, septicaemia, etc., have resulted from a primary oral sepsis.

Through recent labors of sister specialists—the rhinologist and laryngologist—the dentist has learned, too, of the intimate relationship that exists between abnormally developed maxillae—the correction of which occupies so much time and skill on his part—and adenoid growths, hypertrophied tonsil and deflected nasal septae.

It is strange, but I believe you will find it true that the highest and broadest appreciation of our really invaluable services to mankind has come from the recognized authorities among medical men and medical specialists. They have accorded to us a position of usefulness as practitioners of a branch of medical practice, which we, as a profession, have hardly dared to claim. As a profession we have, I am sure, been extremely modest in our claims.

It is only after a wider and deeper study of physiology as a branch of biology, and after deep meditation on the special and far-reaching complications involved in questions of function of metabolism, and of etiology, that dentists themselves have come to respect their own profession as one truly scientific and worthy of the life devotion of the most scholarly student of science. This is one reason why I do not want the dentist to spend his kinetic energy in rubbing or massaging—with or without a cot on his finger—the healthier gums of his patients, or in polishing with sticks and pumice the surface of healthy teeth. It is beneath him so to waste his force, even if by study he may be fired with enthusiasm and have a vivid picture in his mind of the effect on the underlying connective tissue cells and their intercellular fibres, on the epithelial and glandular cells, on the motion of the blood in the arterioles and capillaries, on the exudates from these capillaries, on the afferent and efferent nerve impulses waked up in the neurons, of the changes in lymph and lymphatics and the metabolism of the cells of all the tissues under the finger as he rubs, and rubs, and rubs the gums.

I am a firm believer in the benefits to these special oral tissues of systematic and scientifically-directed massage. I cannot say too much in favor of this operation.

When we remember the histological structure of these oral tissues, and consider the transitory character and susceptibility to degenerative changes (Talbot), I know of no better preventive measure than properly-applied stimulation of the gums by massage, under a trained hand. Polishing the surfaces of the teeth a la Dr. D. D. Smith is another important measure in preventive dentistry.

The use of scientifically-selected mouth-washes (Dr. George W. Cook) and the application of nitrate of silver solution to the solid tissue of the teeth (Dr. L. C. Bryan) are the other prophylactic measures with which we are becoming familiar.

These three operations, or, rubbing, polishing and washing, are fundamentals in "preventive dentistry." We all believe in them. We all know that each of us would be better off dentally, and that all people, school children, and young and old, male and female, would be vastly benefited if each would, or could, have these operations skillfully performed at least every week, aside from his own daily efforts at cleanliness.

And yet I say, this is not dental surgery. Only a few men, one here and one there, are willing to do this all-important work. I would not have them do it. This is why I have urged the colleges to furnish facilities for the training of a class of women who will do this for us while we devote ourselves to perfecting the preventive medicine part of our specialty, as in orthodontia, in surgery, and in our so-called operative and prosthetic or mechanical dentistry. In these departments we restore diseased tissue to health and replace lost parts of an important organ, and correct surgically and mechanically the results of developmental errors as shown in irregularities, narrow arches and malocclusions of the teeth.

This is dental surgery proper, and it is as worthy today of our best efforts and careful training and broad study, and, I will add, of our enthusiasm, as it was in the days of Harris and Taylor, and Dwinelle, and Atkinson, and Morgan, and Mason, and the fathers of dental surgery, and of all others who have made dentistry the unique and independent and useful profession which the cultured world everywhere gratefully recognizes. I know, by private and public criticisms by Dr. D. D. Smith, that he does not approve of my attitude. He has written to me, partly in joke, and partly in earnest, that if I would go on to Philadelphia and witness for myself, in his office, the result of his so-called (falsely) oral prophylaxis treatment of the mouths of twenty or more patients who have had teeth and gums that were once in a wretched state and are now restored to health and beauty, I should forever hold my peace. Dr. Hoff, in an editorial in the Dental Register, said practically the same thing. Dr. Rogers, a lady dentist, a good writer and an enthusiastic oral prophylaxist, stands firmly on the same ground. Many others, in the discussion of the subjects, have ranged themselves on that side of the line.

It is very painful to a mild-mannered, amiable, soft-spoken, gentle creature like him who now addresses you to be compelled to conscientiously believe that these dear confreres are all wrong, that they are illogical, that they are not exact in their definitions, and that they don't know what they are talking about. I have, in this state society on two previous occasions (and wish again at this time) drawn a sharp, black line around the term oral prophylaxis, if we must continue its use, and confined it within this line as meaning operative measures on healthy oral tissues, hard and soft, to prevent the occurrence or recurrence of caries, of erosions, and of degenerative inflammatory disease of gum and sockets of the teeth.

This is the department of preventive dentistry which we have either entirely neglected or left to our patients to attend to with or without our special instructions, and our advice, according to late discoveries by Miller and George Cooke, has not been wise.

Second, that all our other operative measures for cure, for restoration, for replacing—by surgical, or mechanical, or orthopaedic skill—is dental surgery proper, or thorough dentistry, and prophylactic in character insofar as it prevents pathological conditions outside of the oral cavity. It is a department of preventive medicine. It is the purpose for which we train our minds and hands. I must beg pardon for this repetition.

With this clear idea of the definite distinction between these departments, am I not right in the claim that there is needed a class of dental workers—call them what you will, dental assistants, dental nurses, denticures or what not—who will attend to healthy mouths by daintily polishing the teeth after the most approved manner, and thoroughly massaging the gums, and with compressed air force spray, cleansing and stimulating mouth-washes into crevices between the teeth and all over the mucous membranes of the oral cavity? This to be done very frequently, according to the taste of the patrons and the order of the dentist and for the purpose of combating the known etiological factors in the production of the disease with which we are so familiar, and keep the mouth healthy. This alone is true oral prophylaxis.

DISCUSSION.

I. B. Howell, Paducah, Ky.: I have enjoyed Dr. Wright's paper very much indeed, and regret that I have not the ability to criticize or add to what he has said. It is a very important subject, in fact nothing can be of greater importance to our physical well-being than that of oral prophylaxis—preventive, preservation, of a healthy mouth. When we consider what it contains in its make-up, also as it is the receptacle for all we eat and drink, the grinding machine of all solid substances to be swallowed into the stomach, the contributor of the first digestive element that prepares the food for absorption from the alimentary canal into the general system, and the organ of taste to judge of things palatable to the stomach. Combined with the nasal cavity, they constitute the gate-way through which must pass all substances, solid, fluid or gases, necessary to the life and preservation of the physical man, and serve as sentinels to decide which ought or ought not to pass. We see at a glance that it is by far the most complex of all the cavities of the body.

Gentlemen, prophylaxis is not only good for the oral cavity as a preventative from different forms of disease, but it is good for the whole body. Take, for instance, the report of the great wars of the past; statistics show that for each man killed in battle five have died of disease. In the Russian-Japanese war, the loss in the Japanese army was four men killed in battle to one man dying of disease. This result was accomplished by the application of the modern rules of prophylaxis and sanitation.

In Germany compulsory education has been given in the care of the teeth and mouth. In a report of the city of Strassburg, there were 12,691 visits to the dental clinic in 1904; 6,282 were treated. Of 2,269 children between the ages of three and four years examined, only 362 had sound teeth; less than 16 per cent. of 2,103 children between the ages of six to eight examined, only 160 had sound teeth.

The report ends with this statement: "Since the introduction of the treatment, there is a marked improvement in the general health of the public school children, and there is less headache, earache and stomach trouble." I notice that the essayist quotes Prof. Osler. Gentlemen, Prof. Osler also has said that defective teeth cause more physical deterioration than alcohol, and prohibitionists claim that the ravages of alcohol exceed those of the great wars.

In an address to the students of the Royal Dental Hospital of London, October, 1905, Prof. Osler said: "You have just one gospel to preach, and you have it to preach early and late, in season and out of season. It is the gospel of cleanliness of the mouth and teeth. These things must be your text throughout life."

Gentlemen, there is not any one single thing more important to the public than oral prophylaxis, and we as practitioners have got to talk it more in the future than we have in the past. Now, as to the essayist's idea of the dental schools training nurses to take charge of this work and relieve the dentist, I hardly know whether I agree with him or not; just how that would work I know not. I know of but one man in America that does thoroughly agree with him on that; that is Dr. Rhein, of New York.

CLINICS—KENTUCKY STATE ASSOCIATION, 1907.

PRACTICAL POINTS IN PROSTHETICS.

Dr. J. B. Jordon.

Compound; Compound Impression—Take impression in the usual way. Remove and cool, then trim about one line over whole surface, lay very soft layer of compound over impression and press quickly into place in the mouth; this gives a very sharp and accurate impression.

Occlusion—If occlusion is found not to be correct when teeth are tried in on wax, get the jaws in proper occlusion with the teeth in; then take a small roll of softened compound and take an impression of the buccal surfaces of the bicuspids and molars on each side, shell and remove; then place wax plates into impressions and remount on articulator, which gives you the correct position of the models; then rearrange the teeth.

Plate Line—Use a stiff, narrow brush wheel to brush out your plate line instead of trimming it out with a knife, as the brush wheel goes into the low places, which are usually passed over by a knife.

COMBINATION GOLD AND CEMENT FILLING.

Dr. B. D. Rivers, Louisville, Ky.

Intended to be used especially in frail teeth, having frail labial plates, or where retention form is not adequate, but can be used advantageously in any cavity, where gold filling is desired.

Prepare cavity in usual way and line same with cement about consistency for crown-setting. While cement is soft, press into cavity a piece of mat gold, such as Vernon's, Keeton's or moss fiber, that is just large enough to fill same. Condense gently and remove any excess of cement at margin. Continue placing in gold until all cement is covered, each time condensing more thoroughly . Pack with a good body of gold into retentions. The filling can be finished with any gold desired.

AMALGAM-CEMENT.

Dr. Henry Pirtle, Louisville, Ky.

This constituted the making of a combination of cement and soft amalgam incorporated and placed in the cavity and there veneered with amalgam proper. The cement and amalgam are mixed thoroughly on the slab.

This method is especially suggested in very sensitive, shallow cavities on the buccal portion of third molar, where it is difficult to obtain undercuts.

GOLD INLAY, RAPID METHOD.

Dr. McFerran Crow, Versailles, Ky.

In making gold inlays I use 36g. pure gold for a matrix and build up the filling with pieces of 22k. plate and pellets of different sizes, made by melting old fillings, scraps, and pieces of 22k. plate. In preparing the cavity, round out the angles and corners and bevel the margins. Adapt a piece of the matrix approximately to the margins, not attempting to force it to the floor and walls of the cavity. I next solder to the reverse or cavity side of the matrix a spur, loop, platinum pin or small wire, according to the requirements of the case, for an anchorage, using a minimum amount of solder and a liquid flux. After the anchorage is attached, return the matrix to the cavity and burnish it to the margins, then remove and place it on a soldering block with the anchorage down. Place pieces of plate or pellets of gold in the center of the matrix, add solder in small pieces and melt with the blowpipe. The inlay may now be returned to the cavity for re-burnishing as often as necessary, pellets or strips being added and soldered until the proper contour is reached. Use very little flux and just enough solder to fill the spaces. It is never necessary to invest the inlay for soldering. The whole operation may be completed at one sitting, as the inlay, when properly anchored, may be finished off with stones and discs in from five to fifteen minutes after setting.

CROWNS AND BRIDGES.

Dr. C. G. Myers, Cleveland, Ohio.

Dr. C. G. Myers displayed some very beautiful and artistic specimens of crowns and bridges, and demonstrated the details of constructing the same, after his very original methods, described in his lecture.

Exhibited a novel instrument for holding a sponge for moistening wheels in grinding in the mouth and presented each of those present with one of the same.

ASCHER ARTIFICIAL ENAMEL.

Dr. H. B. Tileston, Sr., Louisville, Ky.

Filled a large distal cavity in a superior central incisor with Ascher's Artificial Enamel. The cavity prepared with slight undercuts, the enamel mixed very thick with an ivory spatula and placed into cavity with ivory instruments. A celluloid matrix was used. The finished filling was almost imperceptible, even more so than a porcelain inlay.

GOLD OVERLAY.

Dr. C. G. Edwards, Louisville, Ky.

Filled cavity carelessly with stopping or wax and fitted 30g. pure plate over orifice, lapping enamel margins, soldered small wire loop on under side, and cemented same into cavity, burnishing margins thoroughly.

HOW TO TAKE A BITE.

Dr. C. E. Jenks, Louisville, Ky.

Place small ring of wax near distal margin of bite-plate and instruct patient to hold tip of tongue in this ring when closing jaws.

BURNISHING GOLD INLAY MATRIX.

Dr. H. K. Kellogg, Louisville, Ky.

Holding matrix firmly in position, actually swaging gold to fit cavity by use of large burnishers, being careful not to allow any movement of same while burnishing.

OLIVIAN PLATE SWAGER.

Dr. Ed. M. Kettig, Louisville, Ky.

Table clinic of the use of the Olivian plate swager demonstrates the rapidity and positiveness with which metal plate may be made, with all the trouble of sand molds, and uses of counter dies eliminated. Impressions are taken in the ordinary way in plaster or modeling compound and especially-prepared fusible die metal, heated and at once poured in. This metal die is then set in a base of modeling compound in the lower half of the swager, and after cooling is ready for the swaging. The upper half of the swager has a plunger in the center, and when the metal is placed between the two halves of the machine the plunger is hit with a hammer and the swaging completed. In doing this, it may be necessary to open swager once or twice and trim metal plate and coax out buckling or bend with plate pliers.

OTHER CLINICS.

Dr. R. E. Grant, gold inlays.

Dr. I. H. Harrington, preparation of difficult cavity for amalgam restoration.

Dr. N. T. Yager, Dodel elevators in extraction of third molars.

Dr. T. M. Crutcher, use of Brewster's special crown and bridge teeth.

Dr. C. R. Shacklette, gold filling at gingival margin by wet process, without rubber dam.

Dr. J. W. Clark, Louisville, treatment of pyorrhea by instrumentation showing the advantage of Younger set by pyorrhea instruments.

Dr. J. R. Wallace, Louisville, gave one of the most satisfying and largely-attended clinics of the meeting. It was a continuous table and chair clinic, demonstrating the practical uses of "liquid filling" of the finest product of old Kentucky. Everybody had filling "ad libitum".

PRESIDENT'S ADDRESS.*

By N. H. Morrison, Red Cloud, Nebraska.

Through your kind indulgence of one year ago, I today have the privilege and exceeding great pleasure of extending to you, the members of this honorable society, and to our friends and guests, a most cordial welcome to this, the thirty-first annual meeting of the Nebraska State Dental Society.

I am proud of this society and the history she has made in her thirty years of existence, and hope that she may thus continue. I deeply feel the grave responsibility you placed upon me by thus honoring me, and yet I should more readily feel my inadequacy did I not know that from those who have nurtured her in her tender years, I shall have fatherly advice and indulgence in my shortcomings, and a hearty co-operation from every member present to give this meeting the high place it is deserving.

It is gratifying to your executive committee to feel that all the services you have so willingly rendered were prompted by hearts filled with a desire for the success of this meeting and the advancement of the dental profession in Nebraska. You have been invited here today to discuss questions of vital to each and all of us if you will but grasp this one idea: questions the better understanding of which may make life easier and more useful; and this society will mean a great deal more to each and all of us if you will but grasp this one idea: question the clinicians freely, discuss the merits of their clinics; criticise as readily, but use discretion in the manner in which you criticise, realizing always that the object of the clinic is, to as nearly as possble, systematize all dental operations so that they may be performed more scientifically; and when discussed in this spirit, the discussion often resulting in more good to the clinician than to the most interesting observer, the same being true of a paper, the essayist often receiving more benefit from the discussion which his paper enlists than do his hearers from the thoughts which he advances.

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*Read before the Nebraska State Dental Society, May, 1907.

No man knows his own power until he knows something of the doings of the men about him; the act of one man is the inspiration of another, and there is no greater work for this society than to help men to discover themselves and their own; neither is there any way in which it can be so readily accomplished as in society clinics, if those clinics might be systematically and scientifically conducted. It is too frequent, I am sorry to say, that we hear unjust criticisms of our state society in its honest endeavors to give its members the best the profession have to offer. Yet we all must agree that there is something radically wrong with an organization which does not appeal to a greater percentage of the members engaged in the same profession within its jurisdiction. We do not do justice to our worthy calling when we condemn those who remain without its ranks, for at present there are but 200 members in the Nebraska Dental Society, while there are nearly 600 members of the profession within the state, and the same conditions must exist in other states, which is the cause of so many of them reorganizing, and by so doing increasing their membership, in some cases several hundred per cent.; but just increasing our membership would not appeal to me if I did not know the inestimable benefit to be derived from society organization and the association of dentists; yet the society, I realize, may become a greater power for good because of its representative membership.

BETTER SOCIETY ORGANIZATION.

But can we not so systematize our organization and its work that it will draw the members of the profession closer together, destroying the commercial and competitive spirit, and instilling a desire for research and study, and so direct that study that we may present one grand phalanx of scientific reachers? I think we can, partially at least. And using the words of Dr. Conzett as he laid a similar plan of reorganization before the Iowa Society: "I bring it before you that it may have the benefit of your wisdom. I trust that you may feel as deeply concerned about the welfare of this society and the development of the profession as I do, and will fully and freely discuss and criticise the plan I lay before you, remembering through it all that what I have to offer may not be the best; nor do I have the egotism to think so, but it is the best solution of the problem that presents itself to my mind, and I lay it before you in the hope that your wisdom may so develop it that it may prove to be of great value to us as a society and a profession."

When I returned to my office at the close of the Omaha meeting, one year ago, it was with the determination to organize a local society in my part of the state; once before I had so decided, and I had gone so far as to prepare a circular letter, to mail to every dentist in that section, but receiving no encouragement from those to whom I talked, I dropped the plan. The Omaha meeting filling me with enthusiasm and a desire for more association with my fellows, I again prepared a similar letter and mailed it to some sixty dentists in the southern part of the state; to this letter I received but a few answers; again I prepared a personal letter and received the expression of some twenty-five dentists, not all, however, favorable to such a move, but enough to assure me that it was possible to organize a local society in that vicinity. Again I sent out a personal letter, stating that at 2 p. m., on the 30th day of August, 1906, we would attempt to organize a local society at Red Cloud, and urged every man in that vicinity to meet with us; the result was that seven dentists organized a local society, giving it the name of the Southern Nebraska Dental Society; officers were elected, committees appointed, and the next place of meeting decided upon before we adjourned that evening. On the 30th of November following, we met at Superior with seventeen members present, and had a very enthusiastic meeting; adopting our constitution, pledged ourselves to endeavor to bring a new member with each of us to our next meeting, which convened in the same place in February, Dr. Clyde Davis, dean of the Lincoln Dental College, accepting an invitation to meet with us at this time. I haven't the command of words or the power of expression to reveal to you, except in a feeble way, the enthusiasm that was displayed at this meeting. Never before since I have been a member of the dental profession have I seen members warm up to each other (if you will allow so vulgar an expression), and get so close to each other, as at those clinics that morning; there was no question too insignificant to receive a careful, courteous and considerate answer; no point was raised or an objection offered but what was discussed from an unbiased and unprejudiced standpoint; and that afternoon and evening, as we formed ourselves into a little family circle to read and discuss our papers, it was like gathering around a home fireside, our honored guest occupying father's chair, and we, as eager children to learn, feeling that it was impossible for us to go astray because we put explicit confidence in his teaching.

Since this meeting I have just described, it has been my great pleasure to attend another conducted practically in the same manner, where the same spirit prevailed, and for nearly four hours we sat as eager listeners careful that not one sentence should fall, but what was eagerly grasped by every member present. I think you will readily discern my plan; it is simply this: make the several local societies now working in our state components to the state society, as was done in Illinois; add to these as many more as it is possible to form in other favorable localities. Let the state society select a list of men who are known to excel in the several kinds of operations which we are called upon to make, the president of each local society casting lots for three of these men to be sent to his local society at its quarterly meeting, the society to pay the expenses of the guest; thus you see every society will have had three clinics during the year. From these clinics and papers each local society would select a few of the better clinics, from which the executive committee of the state society could readily select plenty of material for the state society meeting, which should be the fourth quarterly clinic of all the societies of the state.

Those of you who are at all familiar with the immense amount of correspondence that is necessary to arrange a program so complete as have our executive committee prepared for this meeting can more readily appreciate this feature of the plan.

Often it is necessary to write four or five letters to a man before he will answer; then, perhaps, he will briefly say that he doesn't know of anything that he does in a peculiar or more skillful manner than any other member of the society. Then, again, there are those to whom the secretary has sent a return postal, a personal letter and a letter with return postage, and all have been pocketed without an answer. Under this plan the secretary of the program committee may arrange a complete program through correspondence with the secretaries of the local societies only.

Again, this continual hammering away for members by the membership committee will be done away with, as each local society will be responsible for the members in its particular locality, thus assuring the state society of a more desirable membership, because a man is often voted into the state society who is unknown to the committee, or even to any member of the council.

There will be fewer men in arrears for dues and fewer dropped for nonpayment because it will be necessary for a man to keep in good standing with the state society to retain his membership in the local, and the treasurers of the local societies must remit to the treasurer of the state society.

I think I have made myself clear upon this subject and trust that you may feel as deeply interested about the welfare of the society and the development of the profession in Nebraska as I do. In bringing this very important subject to your attention at this time it was with the hopes that I might at least create a lively discussion of the subject and that your wisdom might so elaborate upon this plan that a committee might be appointed, with full instruction as to the wishes of the majority of the members of the society, and that before the close of this session the work of reorganizing the Nebraska Dental Society might actually be begun.

Hoping I have at least partially succeeded in my endeavors, I leave this thought with you and turn to another of greater importance to our patients, but one which can alone be solved by the members of the profession; and in this, the dawn of prophylaxis, to reap the greater fruit for our labors, it seems to me that we must covert our attention to the young and growing.

ORAL HYGIENE INSTRUCTION IN THE PUBLIC SCHOOLS.

From the school girl and the school boy how oft have you heard the remark: "Doctor, I should think you would scratch the enamel and cause those teeth to decay by using those sharp steel instruments around them." Why this remark? Simply because every text-book on physiology contains this commandment, "Thou shalt not pick thy teeth with a metal toothpick." Now, had these same physiologies told the child with what and how to pick his teeth, and how to properly care for and cleanse them, would not he have remembered it just as forcibly? Give the youth the proper instruction in his text-book, backed up by competent teachers who are properly instructed in oral hygiene, and you have paved the way for the dental surgeon to step in and assist the child at the period of greatest danger and cause him to form systematic and regular habits of oral cleanliness which will cling to him through life.

Under our present text-book law we have a more uniform set of books than where each individual procures his own, and if this society will appoint a committee to revise the chapter on oral hygiene in several of the most used text-books, wait upon the state superintendent of public instruction as a committee from this society and induce him to take it up with the publishers of the several books, you have, in my opinion, laid the foundation for the proper pursuance of oral prophylaxis. And to go a little farther, if there could be a dentist selected in each county to go before the teachers' institute and instruct them along a uniform system of oral hygiene, they would be much more capable of instructing the youth and lending a helping hand to the making of preventive dentistry a grand realization in the rising generation.

CALLED BY DEATH.

It is with feeling that I am compelled to call to your attention the fact that the Angel of Death has once more entered our ranks and summoned one who was held in high esteem by this association. In the death of Dr. W. H. Shriver the profession has lost a valuable member, one who was always ready to advance its interest, a man of amiable disposition and faithful in all the relations of life.

I would respectfully recommend that a committee be appointed to draft suitable resolutions and take any other action it might deem proper in connection with Dr. Shriver's death.

And now, in conclusion, I wish to personally thank the members of the various committees for the enthusiastic manner in which they have performed their several duties, and all others who have contributed in any manner to the success of this meeting. Realizing as I do the enormous amount of society work that has fallen upon our worthy secretary and the manner in which he has so diligently performed his duty, often at the sacrifice of his own business and social relations, I feel that this society is deeply in his debt, a debt not to be paid in dollars and cents, but simply by an expression of appreciation in the form of a complimentary motion.

On behalf of the society, I wish to extend a cordial welcome to our honored guests, thanking them for the honor they bestow upon the Nebraska Dental Society by their presence at this meeting; I assure them that every member present will be deeply interested in what they have to offer. I hope they will feel perfectly at home, and heartily enter into all discussions of clinics and papers, as we wish to make this a particular feature of this meeting.

DISCUSSION.

Dr. Bruening, Omaha, Neb.: Dr. Vance has corresponded with the secretary of the Illinois and Iowa State Societies, and through them I received their plans of reorganization. I have read them over, and while we have not as many members in this state, yet there isn't any question in my mind but what we can have local societies in a flourishing condition within the next year if the matter were taken up at this meeting. In order to do this, I would suggest that the president appoint a committee to consider this proposition and report a plan of dividing the state into local societies, taking into consideration those local societies which are already organized, so that this society may take definite action.

Dr. M. E. Vance, Lincoln, Neb.: I think it is very fortunate for the society that you are not all as enthusiastic over this plan of reorganization as I am. I think sometimes I go into things a little too deeply and with more enthusiasm than the case warrants. But I feel that if nothing else results from our efforts at this meeting, if we lay plans for the reorganization of our state society along the lines that Illinois and Iowa have proceeded, that we shall have accomplished far more than any other meeting we have ever held. I want to say that the ideas of Dr. Morrison meet with my approval in every way, and I trust some plans will develop during this meeting that will carry his suggestions into effect, that before we close we may have some form of reorganization under way.

Dr. J. H. Wallace, Omaha: I am sure that this idea, as presented by Dr. Morrison is new to a great many of us. We are all aware that these things are carried out in Illinois and in some other states, but the question that comes to my mind is whether Nebraska has a sufficient membership or number of dentists in the state. But to get this before the society in a proper way, I make a motion that the chair appoint a committee of three to consider this matter and present it at our last business session. Carried.

Dr. Clyde Davis, Lincoln, Neb.: Mr. President—I can say that I heartily agree with my friend Morrison in his plan of reorganization. I believe it is a good one. It takes up the question of the financial part of it, and I think if we carry his ideas out in our organization of secondary societies we will do well. I heartily agree with what the doctor said, and I further move that a committee of three be appointed to draw resolutions on the death of Dr. Skeede and Dr. Shriver.

Dr. Skeede was a very hard worker, and always pleasant. I miss him very much as a personal friend, and I know the society does. Motion carried.

Dr. Roseman: I want to say that Dr. Skeede was elected president of this society in 1893, and of course presided over the sessions of the Nebraska society, and part of the time over the joint meeting of the Iowa and Nebraska societies in the joint meeting in Omaha, in 1894, but he had been a member of the society for several years previous to that, and a good member, too.

Dr. H. A. Shannon, Lincoln, Neb.: There is one other item mentioned in the president's address that I think is worthy of our discussion. It is something which means more to the young and growing people of our community than we at first realize—something that the more we study the more we see it means, not only to the children, but to the parents of those children. It means more not only to the parents of the children, but to the dentists of your locality, and that is the appointment of a committee to draw up a certain form of letter or to organize the dentists of certain communities so that some one man would be appointed to meet with the teachers' institutes and present the oral hygiene question to the teachers in a logical manner. And in order to accomplish this end

I would like to make a motion that a committee of three be appointed by the chair, and that they report to this society at the last session the plan which they have adopted with reference to the presenting of oral hygiene. The committee are simply to form a plan or draw up a plan by means of which men may be appointed in various parts of the state to appear before these teachers' meetings and institutes. Motion carried.

Dr. C. R. Tefft, Lincoln, Neb.: I would like to say one word along that line. It is a good thing. The Odontographic Society laid out a plan here in the society some time ago and had a committee appointed. This committee fell down in some way and did not report, but I want to say this: To my mind, there is no better way to educate the people than getting it to the youngsters. Very often there is some child comes home and tells his parents something has happened in school that perhaps the parents were entirely ignorant of. It is necessary to train these young minds when they start out in these matters. The younger generation of dentists are coming on, and they will reap the rewards. The thing to do is to commence with the children. Three quarters of the people are absolutely ignorant of the first principles. They don't know whether the child's tooth is a six-year molor or what it is, and you will find that is true among a mighty intelligent class of people, too. I have been astonished to have people come to my office well "up to snuff"—if you will allow me to use that expression—and they were very ignorant about these things. I think the idea of getting this before the teachers is a splendid idea, and I think it will not only result in the help of the children's teeth, or the older ones, too, but in every way I am satisfied that it is a good thing.

Dr. F. B. Dameron, Lincoln, Neb.: Acting on another suggestion that the president mentioned in his address, I move you that the Nebraska Dental Society extend to our secretary, Dr. M. E. Vance, a vote of thanks for the enthusiastic and energetic manner in which he has performed his services, and for the excellent and strenuous manner in which he has carried out the wishes of the society. Carried.

Dr. Vance: I certainly appreciate this vote of thanks of the society very much, and I presume this relieves me from any responsibility of anything else at this meeting does it not? I want to thank the society for the support that they have given the secretary in the past three years, and I am sure if my efforts have been of any avail, or have contributed in any way toward the success of the meetings, I am well repaid for my efforts, and I thank you again.

President Morrison: I am more than pleased at the manner in which you have received my paper; yet I am also disappointed, because I was in hopes that this matter of reorganization might be handled with gloves on. It is a subject that I have thought a great deal about, and it is a subject which I was in hopes of seeing thoroughly discussed from every phase of the question. I thought about it a great deal before I could decide to bring it before the society, feeling that perhaps I was trying to advance or push the Nebraska society along a little too fast; yet at the same time I realize the amount of good that can be done by the members of the profession of the state of Nebraska if we just simply get together and organize. What little work I have had along this line has firmly convinced me that it is the only way for dentists to go. The reason why I dwelt so long upon our local society was to show you what it was possible to do in a locality where dentists are not very thick. We went over a radius of, I think, 150 miles at least, from one end of the territory to the other, and from that distance we got dentists to our meetings. Now some one has suggested if it were possible to get enough societies to start in on this reorganization plan. I will say that at present there are at least six local societies within the state of Nebraska. This gives us a nucleus to start upon. There are other districts where the dentists are much more numerous than they are in our locality, where societies could be organized within a county, and yet have more members than it would be possible for us to get in our territory, extending over a number of counties. In planning our society, we planned it with the hopes that the Nebraska State Dental Society would absorb us within a year or two at least. Our constitution and by-laws and everything were planned so that it would be possible for the Nebraska State Dental Society to take us in without any particular effort, and I am disappointed that this subject has not been more thoroughly discussed. I also want to thank Dr. Shannon for bringing up the particular topic that he did in my paper. I was afraid it went so far that maybe this matter would be overlooked. I think that a dentist can do more along the line of oral prophylaxis with the children, and the children get a great many more thoughts from him that they would not get from their text-books if their curiosity were not aroused by their study at school. This one idea as to picking the teeth with the metal tooth-pick: I never saw a text-book on physiology in my life that did not have that one particular clause in it: "You shan't pick your teeth with a metal tooth-pick!" There is not a child in the land but what can tell you about it when you go to clean his teeth thoroughly and take the calculi from them. That is what gave me the idea, and I hope that we can get members on this committee that will look after this matter. I believe that is all, and I want to thank you again for the manner in which you received this paper.

LITTLE THINGS.*

By W. S. Roseman, D. D. S., Fremont, Nebraska.

"Little drops of water, little grains of sand
Make the mighty ocean and fill the beauteous land."

How true it is the little things are often as essential as the greater ones. The tender is an important part of a locomotive, yet what would that same locomotive be without the flange to its wheels?

For a few moments I wish to call your attention to a few of the little things I feel are necessary in our practice. In the language of Scripture, "Despise not the day of small things." When patients call, they should be received courteously and politely; find their needs and ailments. First of all, inspire them with confidence by showing their interests are your interests, keeping back the one fact or thought of how much you are to get out of it financially. Before taking the chair it is our duty to see that everything is scrupulously clean—no blood upon the cushion, no odor whatever which can be avoided by putting in just a few grains of copperas, in a very little water. Then, no soiled or blood-stained napkins or instruments should greet the sight of our patients. Your essayist well recollects of going in a practitioner's office, in an adjoining state. The first thing that greeted our eyes was, lying upon the instrument stand, with other instruments, a pair of forceps holding a half-decayed molar just as it had been taken from the mouth; truly, anything but a pleasant sight. This same practitioner made himself unpleasant by working among his pigs and going direct to his office without changing his clothes.

ATTENTION TO THE HANDS.

Too much attention cannot be given to the hands. First, thoroughly washed, the nails trimmed, polished and cleaned; for what can be more repulsive than to see the fingers draped in mourning going into the mouth of a sensitive, critical patient? While on this line I will say, a drop or so of a pleasing antiseptic upon the hands may not be out of place. I find a few drops of Sanitol put in the water before washing the hands leaves a flavor to which few, if any of our patients will object. Sanitol I find quite acceptable when a few drops are put in the water used in washing out cavities preparatory to filling, where the dam is not used.

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*Read before the Nebraska State Dental Society, 1907.

DO NOT USE TOBACCO.

No dentist, I hold, has a right to in any way use tobacco. More than once has the complaint come to your essayist, saying, "I do not like Dr. So-and-So on account of the strong odor of tobacco." Especially is this so of ladies from families where there are no men.

As to the care and keeping of the oral cavity, the dentist, of all persons, should be the most fastidious. How can he talk hygiene and cleanliness to his patients when his own mouth belies the practice of what he preaches? Truly, it should be practice as well as precept. The idea of a dentist having his mouth in a condition he would not let the patient leave the chair in is reprehensible. Too little attention is often paid to properly instructing our patients regarding the care of their teeth after dental operations are performed.

SOME PRACTICAL POINTERS.

A good cavity lining can be made by dissolving Balsamo del Sarto in chloroform. This should be applied just as soon as the preparation of the cavity is finished, in order that the chloroform may evaporate. Then, with a pledget of cotton dipped in alcohol, wipe the tooth dry. When you come to insert your gold you will find no retaining points necessary, as owing to the Balsamo del Desarto being so sticky,your material, especially gold, will remain in place and stand any amount of malleting. I also treat the tooth in the same way when inserting cement or amalgam fillings. Then I feel I have as near a moisture-proof filling as can be made. A good plate-lining: Dissolve white rubber in deodorized benzene until it is about the consistency of thick cream. See there are no undissolved pieces of rubber; then add aluminum powder until it is about the consistency of paint. When ready for flasking. coat your cast, giving time to dry, or rather the benzene to evaporate. When your plate is finished you have a lining that cannot peel off, as the addition of the rubber makes it a part of the plate. By so doing the plate is much more easily kept clean, and much more comfortable and pleasing to the eye of the patient. Thorough polishing in the final finish will not be labor lost. The same I might say regarding our gold, amalgam and cement fillings. I find no better way of smoothing the approximal surfaces of an amalgam filling than with a strip of rubber-dam.

OUR RELATION TO OUR COLLEAGUES.

These should always be of most fraternal nature. Nothing is made by continually fault-finding and picking at those who are engaged in our line of practice. If we find flaws in operations of our competitors, let us not be the first to speak of it; the patient will soon find it out. Then, again, when our colleagues are unjustly assailed, as they often are, it is our duty as far as possible to defend. All are liable to mistakes. Continual fault-finding not only lowers us in our own estimation, but reduces the patient's confidence in this, our chosen profession. To expect to build ourselves up by pulling some one else down is one of the greatest fallacies imaginable.

Our relation here spoken of is one of the little things in which I hope no member of this society will adopt in his or her practice, but may the broad mantle of charity be extended to all. With these few cursory remarks, I leave the matter with you, trusting we may not "despise the day of small things".

DISCUSSION.

Dr. H. T. King, Fremont: This seems a hard paper to attempt to open a discussion on. There are a great many little things and a great many good things. There is one point, though: although Dr. Roseman and I practice in the same town, and I am somewhat acquainted with the peculiarities of our people in Fremont, I don't understand how his patient could stand the odor of Sanitol or prefer that to tobacco. The majority of my patients prefer the tobacco to the Sanitol very, very much. But the point is, what do you want odor for? Why perfume things? It is easy enough to cover things up if you want to. If you have the cleanliness that should be demanded, you don't need anything else in shape of perfumes and the different drugs—hide them and keep them out of sight, and out of the chance of the odor reaching the patients just as thoroughly and completely as you keep the instruments out of sight—I was going to say, bloody instruments, but what is the use of saying anything about a dirty instrument to a society of this kind? Keep all instruments out of sight until you want to use them, and make just as little display of them as possible. The patient will get all he wants of your instruments without having them displayed before him. As to the plate-lining that the doctor mentioned, it is good. He left it rather indefinite, however, when he said that you should make it the consistency of paint. Now, does he mean the ordinary house paint, or ladies' face paint, or some other kind of paint, or what does he mean? However, the lining is good; the lining of a rubber plate with aluminum is the only method that I have ever discovered where I felt safe to allow the patient to see the palatine portion. With all other methods, keep your plate the wrong side up until you get so close they cannot see it. The aluminum lining gives you a clean plate; it will wear. It is harder than your plate itself, and as it comes out of the plaster it absolutely requires no attention on the palatine portion. The plaster completely comes all off and leaves it clean. Some of you have left your plate in the vulcanizer over night, and you have found that you have a big, long job to get the plaster from your plate the next morning. Use the aluminoid lining and you will have no trouble. You can leave it there a week, and it comes out just as clean as you want.

TO MAKE WAX TRIAL PLATES ADHERE TO THE MOUTH.

There is a point not in the paper, and a good one, too, that I struck just the other day after practicing dentistry a number of years. Now, you have all had occasion to insert an upper and lower denture for an old lady who had lost her teeth years ago and had been going without, and some of her friends induced her to have artificial teeth. You make plates of wax and insert the upper denture in the mouth, and that plate will drop down while you are inserting the lower plate. Haven't you had an experience of that kind? All of the older gentlemen here have heard of powdered gum tragicanth, that some people in this state always give their patients when they insert the upper plate, telling them if it does not stay to sprinkle a little gum tragicanth on it and it will stick for hours. I am happy to say that I have not felt the need of that. But there are times when I insert my trial plate to get my bite, and when I insert the trial plate to see if I have the teeth properly mounted and to suit me, and all that, then give your trial plate, your wax plate, a little sprinkling of this gum tragicanth, and you will have no trouble with it. They can move their lips and talk and laugh, and do as they please for an hour, and there you have your trial plate in position. Now, gentlemen and ladies, that little trick alone will pay you the price of admission to this show, providing you, in addition to that, put up the $2 dues at the treasurer's office.

Dr. F. M. Shriver, Glenwood: I am satisfied, if we followed out his small suggestions that he speaks of, it would do us good in the practice.

Dr. Roseman: It is not always safe or just right for a man to plead guilty to a crime, but I must admit it; and if Dr. King wishes to bring a charge against me of being a thief, I should plead guilty, because some of the little things I have there I got from Dr. King, so that he is partly responsible for them. Now, in regard to the doctor. I fear we must have a different class of patients, for some reason, because my patients like the use of Sanitol to cleanse out the oral cavity, and they have not found any fault with it at all. I can not speak for the doctor's, but I can speak for mine, and that is all I can say.

COMMON-SENSE TREATMENT OF PYORRHEA.*

By F. G. Worthley, D. D. S., Kansas City, Missouri.

It is more years ago now than I care to tell that I commenced the practice of dentistry, and I commenced it in the state of Nebraska. I only stayed here one year, but it was long enough to acquire a taste for your wind-swept prairies and your hospitable people, and when I received an invitation to be present at this meeting and participate in it, I accepted it with a great deal of pleasure, and selected as a topic the "Common-sense Treatment of Pyorrhea Alveolaris." I selected it for this reason: The subject of pyorrhea is like that of the Panama canal—we can talk about it indefinitely without having to know very much.

I wish to tender an apology to the gentleman who is to open the discussion on this subject for not having written a paper. I should have written one and sent it to him, but in the hurry of business I failed to write a paper, and so depend on simply giving you a few ideas along the line of the treatment of pyorrhea, extemporaneously. The subject is such a broad one that one has to simply talk here and there in order to say anything at all in the few minutes he can occupy at the meeting, and so I shall dismiss today all consideration of the causes of this disease or diseases, although that would be an interesting topic, and only speak along the line of the treatment and diagnosis which goes with the treatment.

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*Read before the Nebraska State Dental Association, 1907.

The term "pyorrhea" is general, and is applied, by different observers, to several varieties of pericemental degeneration. It is largely owing to the fact that practitioners differ as to what is pyorrhea that so much difference of opinion exists as to its treatment. One man speaks of being successful in the large majority of his cases, while another, perhaps equally skillful, says he finds the disease practically incurable. Perhaps, if each could understand what the other meant by the term pyorrhea they would find no marked difference in their measure of success.

There are four or five different conditions or diseases which are classed under the generic term pyorrhea alveolaris. This name is, of course, not scientific, merely expressing one symptom and one that is perhaps not always present. Various other terms, such as "calcic inflammation," "infectious alveolitis," "phagadenic pericementitis," "interstitial gingivitis," and many others, have been proposed, but until the cause of the various manifestations has been proven there can not well be a scientific nomenclature.

The commonest of the conditions which are frequently classed as pyorrhea is the inflammation and degeneration of the pericementum and associate parts from gross deposits of salivary calculus on the crowns and necks of the teeth. This might well be termed calcic inflammation, as its obvious cause is the presence of calcic deposits as irritants. It is most common about the lower incisors and upper molars, as these teeth are the ones on which the salivary deposits usually first find lodgment. In the presence of extensive deposits there is usually considerable inflammation of the adjacent gum tissue and dental ligament. There is usually pus formation along the inflamed area, but not much tendency toward a burrowing up the side of the tooth-root and the formation of the pockets, so characteristic of other types of the disease. As this condition at least is caused by local irritants, the obvious and principal step in the treatment is their complete removal. That being done, the only special medicinal treatment indicated is the use of a mild, alkaline antiseptic mouth-wash. A one-per-cent. solution of zinc chloride in peppermint water is excellent.

Another condition not at all uncommon is the irritation and loss of structure due to deposits of salivary calculus under the free margin of the gum. This is the type described by Dr. Henry Burchard as "pyorrhea alveolaris beginning as a marginal gingivitis". It is characterized by deposits under the gum margin of thin scales of hard, greenish-colored calculus. The gum over the calculus has a puffy look and a deepened color, in extreme cases looking almost purple in hue. In cases of somewhat long standing, pockets will be found along the sides of the roots, these pockets being comparatively shallow, with a tendency to encircle the tooth root rather than burrow toward the root apex. Within these pockets, on the roots that have been stripped of their protecting membrane, will be found deposits of serumal calculus. This appears as little nodules or islands, and clings with provoking tenacity to the roots. If much loosening of the roots has taken place, it is well, in the treatment of this, as well as other varieties, to first secure them by some method of wiring or splinting. In this day of artistic bridge-work and multiplied orthodontia appliances, it ought not to be difficult for any dentist to devise an appliance for the purpose. This having been put in place, the next step, after a thorough syringing of the parts with hydrogen peroxide, is the removal of the calculus. It is easy to say, "Remove every particle of deposit, both salivary and serumal," but in some cases it is impossible. Pockets sometimes burrow to such a depth, and in such directions, that the most expert operator fails to detach every particle of the calculus. Unless he does, there is no hope of a cure. While the serumal deposits are the result and not the cause of the condition, once having formed they will prevent healing. Every operator has his method of procedure in these cases. Probably the best results are obtained by the use of thin push-cut instruments, used in the manner of a chisel. Care should be taken not to wound the free margin of the gum. The pain of the operation can be much lessened by packing the pocket for 10 minutes with a pledget of cotton saturated with a 10-per-cent. solution of cocaine. Having removed the deposits as thoroughly as possible, any of the accepted medicinal treatments may be used. The writer is strongly of the opinion that much more depends on instrumentation than medication. The following has given excellent results:

℞ No. 1.

Iodine crystals	10 gr.
Creosote	½ oz.

℞ No. 2.

Tannic acid	10 gr.
Glycerine	½ oz.

To use the above, pump the pocket full of No. 1, using a wood toothpick or sharpened orangewood stick. Wait 30 seconds and follow with No. 2, used in the same manner. Having treated each of the affected teeth in this manner, prescribe a good mouth-wash and dismiss the patient for four days. If at the end of that time there is any pus formation noticeable, the entire treatment, scraping, polishing and medication is to be repeated.

This line of treatment will effect a cure in a comparatively short time, provided all the calcic deposits are removed.

The type of disease that Dr. Black has termed "Phagadenic Pericementitis" is perhaps the most obstinate of all the conditions classed as pyorrhea. It generally affects but few teeth at once; it is first noticed by a shifting of the tooth in position, at which time an examination will show a pocket on the side of the root. These pockets are deep and narrow compared to those of the type just described. They generally burrow to the root apex by the time the root is one-third encircled. The peridental membrane is stripped from the root the entire length of the pocket and the overlying alveolar process is also destroyed, leaving the gum tissue alone covering the denuded root. There is usually little salivary calculus about the necks of the teeth; in fact, in the majority of cases, there is none at all. However, the serumal deposits are generally found higher up on the root. There is not much change in the local gum color, though many cases show a slight purplish discoloration. Neither are the teeth markedly loosened until the later stages of the disease. In the treatment of this condition, Dr. Black recommends that, in addition to a thorough scraping of the root, the alveolar edges along the sides of the pockets be scraped to remove any necrotic bone that may be present. This is desirable where it can be done. Owing to the depth of the pockets and the comparatively narrow approach, it is impossible in many cases to completely remove the deposits and necrotic tissue without removing the tooth. Consequently many cases of this condition must be regarded as not amenable to treatment. However, there is no reason why such cases should not yield to treatment, provided all irritants are removed. The success of the practitioner in the treatment will depend on his skill in instrumentation. The subsequent medicinal treatment consists in cauterizing the pocket to its entire depth and the use of antiseptic and germicidal washes to prevent a reinfection of the area. The use of such constitutional measures as will insure the greatest amount of resistance to renewed attacks is an important subject, but does not come under the scope of this paper. Almost all of the caustic alkalis and acids have been recommended at different times as cauterizing agents for pyorrhea pockets. Fifty per cent. sulphuric is probably as good as any. Trichloracetic is highly extolled by many.

To sum up: The principal feature of the treatment of pyorrhea is thorough instrumentation. If all local irritants are removed, any of the accepted treatments will prove effective. If they are not removed, no amount of medication, local or general, will avail.

DISCUSSION.

Dr. Horace Warren, Missouri Valley, Iowa: We had Dr. Smith over there at the Iowa society two weeks ago on pyorrhea. He read a paper that took him an hour and forty-five minutes—a paper—that wasn't a talk; an hour and forty-five minutes. Well, it was instructive, but it was tiresome, although he is a great character, Dr. Smith is. He is an authority, and was most interesting to me, though Dr. Smith is a very prosy talker. Now his idea of pyorrhea is that we have got the cause and effect mixed. He says that Bright's disease is caused by pus from pyorrhea, being ingested into the system, whereas those that held to the theory of constitutional cause of pyorrhea claim that the pyorrhea was caused by the Bright's disease, and Dr. Smith's is a much more sensible theory to me. In the treatment of pyorrhea it is an excellent idea to give the patient some of these antiseptic napkins to keep in his pocket or keep with him constantly to absorb that pus—keep it out of the system, and do it continually, just before eating and every few hours. That keeps the pus from getting into the stomach, and by doing that I have had much more success with pyorrhea than before I did that. I don't think I am capable of discussing this any further because it is too excellent a paper.

Dr. Wildman: We are taught that one of the best things in the treatment of pyorrhea after medication is that the patient should massage the gums, rubbing the gums toward the crown of the teeth. That has a tendency to push out all foreign substances, and if any pus forms it pushes that out, and by wiping it away with absorbent cotton or napkins, the pus can be kept out of the system, and it also causes a normal circulation of the blood in the gum tissue.

Dr. Worthley: There has been so little discussion that there is nothing to answer. The point the gentleman just made in regard to the daily massage of the gum—I will say in regard to that that I think it is bad practice and I will state the reason so that you will all understand me, I hope. My object in the treatment of this disease, any of these types, is to get a new growth of tissue that will fill up the pocket. Now, you all know how this tissue forms and a daily massage will break up that new growth and never give nature a chance to build up the case. I heard Dr. Black describe the treatment of an abscess at St. Louis, and he told about treating it for six months. It was when he was practicing near St. Louis, when he was one of the members of the St. Louis Dental Association. And he said he treated the abscess every other day for six months. That was in the winter time, and there came up a terrific snowstorm and the patient could not come for three weeks, and when he came in again so the doctor could go on with the treatment, the abscess had healed. Now, it is very easy to break up the formation of new tissue. There are plenty of men, you know, who will say that there is no chance for the pocket to fill up, and I will admit that it is problematic, but this I do say, that if all the local irritants are removed, and then you can keep infection out of the pocket, there would be no question whatever, but it will fill up and you will have a restoration. You all know the difficulty of preventing the ingress of infection in such areas. I have tried where a single central incisor was infected to keep infection out of it by wrapping a little cotton around the neck of the tooth, thinking to keep it out mechanically, but it would be just about like trying to hold chloride of lime over your head, thinking it would absorb the rain and keep it off of you in that way.

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THE CARE OF THE TEETH.*

Dr. L. L. Eells, South Auburn, Nebraska.

The subject that has been assigned to me is so broad that one cannot think of covering it all in the short space of time allotted to me; it is also so deep that one cannot think of fathoming its depths, for necessarily it has been divided into many branches of specialties, and upon these one might be able to write many volumes, and yet it is with much hesitation that I appear before you today, for, as I look about me and see so many who are so much better qualified both to entertain and instruct you, I feel reluctant in taking much of your time in trying to give you anything on "The Care of the Teeth". This, to everyone of us, is the most important part of our professional life, for neither you nor I chose dentistry as our life's work for the sole purpose of alleviating a suffering humanity, who are so full of the aches and pains of an everyday life, brought on chiefly by disobeying the laws of health, or building for ourselves a reputation that would place us in the ranks with the noted ones of our honored profession, that men would raise up and call us "blessed"; but that we might gather to ourselves some of this earth's possessions, that, in after years, when we had descended the western slopes of time, and when our hands were no longer able to toil for our existence, we might enjoy "life, liberty and the pursuit of happiness".

I do not intend to take up the embryology of the teeth, neither do I purpose dwelling upon the law of heredity, and yet, the latter has a great bearing upon my subject, for if a child inherits from its ancestors any form of constitutional weakness, either of mind or body, you have the first step that sooner or later will affect the organs of mastication, and especially is this true if they inherit that disease known as pyorrhea alveolaris, which, in my mind, is the cause of the loss of more teeth than from the ravages of decay. The only ground I have for this assertion is from personal observation. There are two things that I try to impress upon the minds of my patients: First, the necessity of visits to the dentist, at stated intervals, for the examination of their teeth; the duration between each visit depends upon the case at hand. If it be a child under the age of eight or ten years, to have all deciduous teeth that are decayed filled with a sufficiently permanent filling that will preserve them until near the time of eruption of their successors, also that there be no premature or delayed extraction of the deciduous teeth; for if the deciduous teeth be extracted before the proper time there will be a drifting of their neighbors, thus closing part of the space that should be left for their successors; also, if extracted too soon, the jaw would not be properly developed. On the other hand, if left too long, they will interfere with the eruption of the permanent teeth; especially is this true of the cuspid where you get those dreadful teeth known by the laity as "tushes," which, they think, forever blight the future prospect of any fair maiden. Next, if there be any permanent teeth in place, either molars or bicuspids, that they be protected before they are attacked by decay. To do this, dry the tooth with chloroform and hot air, and without any mutilation of the tooth, force cement well into all pits and fissures of the occlusal surface, remove excess, and this will not interfere with proper occlusion. If this be well attended to, you will have little to fear of decay at this point, and you will be surprised to see how long this will protect the tooth, though there be but a small amount of cement; but this comes from the fact of its being so well protected.

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*Read before the Nebraska State Dental Society, 1907.

It seems useless and almost a waste of time for me to tell those assembled here that we should insist upon our patients having all teeth properly filled, and yet there are those of our number who, when a patient asks them to extract a tooth, will do so without explaining to them why that tooth should not be removed. I know this to be a fact, for, when a boy, I went to a dentist and told him I wanted a tooth extracted; well, he did as I told him, but I have often wished to see that gentleman that I might tell him what I think of him for maiming me for life. I also call to mind a case in my own practice: a lady came to me with one of her upper incisors decayed, and wanted it extracted. I tried to explain to her why a tooth that was no more decayed than was the one in question should not be extracted, but this was all of no avail, for she could think of nothing but to have it out. I extracted the tooth, but before doing so I assured her that the time would soon come when she would regret having the tooth out, also that she could not blame me for it. This was in July; she came back in December and wanted the space filled. I could not but remind her of the advice I had given her, and she said, "I see it now, but could not then." The patient today is wearing a plate with one tooth upon it, when she might as well have the natural tooth with a small filling in it.

The second thing that I keep in the minds of my patients is the necessity of keeping their teeth free from all deposits. I have as patients two sisters, who have been under my care for some five years; one has been very diligent in keeping her teeth well filled and free from all deposits, though at times I have had to clean them every two or three months, and today her gums are in a healthy condition, while the other gave her teeth little or no attention, and I recently extracted all that she had left, and will soon put in plates. Note the condition: the one with the same amount of care as the other could have her teeth today, instead of being obliged to wear plates. It is almost a daily occurrence to have patients tell us that there is no need of their having anything done to their teeth, as they will soon be decayed again; and they will recite to you the case of some of their great-grandparents who had such lovely teeth and never brushed them nor had any filled; but have you ever stopped to think that we of the present generation are not nearly as strong physically as were our forefathers? Even their habits and the food they ate were different. Their food was of a coarse nature, necessitating a great deal of chewing. therefore cleansing the teeth and gums and mixing it well with saliva; while, on the other hand, our food is chewed, cooked and predigested, many people thinking all they have to do is to swallow it, thus robbing the teeth and gums of the exercise they should have. You will hear others say that they chew tobacco to preserve their teeth; whether or not this is true I cannot say, for I have been unable to find anything in literature upon this subject; but one thing I have observed: when a person has chewed tobacco for a number of years, you will find cavities on the buccal surfaces of the molar teeth, and I feel confident that his tobacco made them, although I may be mistaken. And last, but not least, we should all instruct both young and old, great and small, that a glass of water, a toothbrush and powder, if properly used, have more cleansing properties than one has any idea of until they have given them a thorough and continued trial. As to the kind of toothbrush, no dentist would think of recommending any other than the prophylactic, and he should keep one in the office and instruct his patients in brushing their teeth. As you will observe, I have refrained from recommending any one kind of powder or mouth-wash, for the manufacturers of every one can give you many reasons why his is the best, as did three men who were telling each other what kind of a wife each wanted. One said that he would want a wife who was like a Bible. Why did he want a wife like a Bible? Because she would seldom be looked at. Another said he would want a wife who was like a piano. Why did he want a wife like a piano? Because she would be upright and grand. The third wanted a wife like an almanac. Why like an almanac? Because he would get a new one every year.

DISCUSSION.

Dr. Wallace: I am not prepared to open this discussion without having seen the paper, not knowing that I was to do so. I am sure you will all agree with me that it was a well-prepared and well-delivered paper, and yet at the same time they are all cold facts, things that we cannot get away from, and we will have to admit them, and therefore they will not allow of any extended discussion. If any one else can pick any flaws they may do so, but I have nothing more to say.

Dr. McCleery: It was a very excellent paper, but I just want to call the doctor's attention to the fact that he was responsible for the extracting of that front tooth. I wish we could impress on these young men that we don't have to do everything that everybody wants us to do, and we are responsible for what we do, and Dr. Eells was responsible for that lady wearing that one-tooth plate.

Dr. Warren: I think so, too, and when Dr. McCleery says, "impress upon the young men," forsooth, the old men are doing the same thing, I want him to understand, all over this land right today. I am a young man myself, and we are not the only ones who are doing it. The old men are extracting lots of teeth. Why? Because the patient says, "Take this out!" And you argue a while, and he wants it out. That is no excuse for doing an unprofessional act. If a patient should come to a surgeon and say, "Amputate this finger for a felon!" would he be authorized to do it? Well, I guess not! And you never knew a surgeon who would do it; but we stand at the chair like tinkers and work by the hour like plumbers instead of standing up like professional men and charging fees for the work we do. We charge by the hour, and we think we are doing a great thing because we get five or ten dollars an hour, and that is what the plumbers do—charge by the hour. It is not the professional way. Did you ever hear of a physician, or surgeon, or a lawyer, or a doctor of divinity charging by the hour? Not much! And we claim to be in line with these professions, and we, like plumbers, are charging by the hour, and it is not professional at all.

Dr. Cobb: I will admit that I am new—just entering the profession. I have just closed my term of school, and I am not going into this profession altogether for the love of it, while I mean to uphold the profession and am willing to advance it; but when we talk about that we may not extract a central incisor for some lady that insists on it, we know that if we do not do it, there are so many men that will do it. Aren't we just as much entitled to the 50 cents as the next man? and he will do it. I am not in the profession altogether for money, but some other man will do it. What am I going to do? I don't know. I have just started, and I want to know.

Dr. Warren: It is better to starve professionally than to get rich in any irregular way. That has been the rule for the last thousand years.

Dr. H. Daly: Speaking of this question, I had an experience not more than six or eight months ago in our town. A young man about 16 years of age came in and wanted me to extract an upper first molar, and believed that he would have to have it out, and of course I said to him in starting out, "I don't think you ought to have that tooth extracted." "Oh, yes," he said. "I am going to have it out; I am going to have it out." I just sat back in the chair, and I said "All right, but I will never take it out." "Well," he says, "I can go and have it taken out." He went to three physicians in town, and they all refused to remove it. He went to another, and he attempted it, but did not get it out. The young man explained this to me afterwards and talked to me about it, and he said he had tried to, but couldn't get anybody to remove it, and he went to one, and he took hold of it, and the third time he tried and couldn't, and the result was, a day or two after the young man came back to me and wanted to know if I could do anything for him, and I finally took care of the tooth. The last thing he did was to shake hands with me as he went out of the door and thanked me for the position I had taken in the first place, and I think that will do a man more good than for a dozen to go out and get mad because he did extract the tooth.

Dr. McCleery: I think it is a very easy matter to handle. You want to keep your head and explain to them the value of a tooth. I tell them: "Why, if I had that molar in my head I wouldn't take $50 for it," and explain to them that you can stop the aching just as quickly without pulling it as you can to pull it. That is what they want—to get rid of the ache—not so much the tooth, but the ache. If you can stop the ache, they will have it filled. I haven't any trouble with that class of patients at all. You don't want to get mad at them, or anything of that kind; just keep your head and impress on them the value of the teeth.

Dr. Corbett: I had a little experience last week. A lady came into my place, and she says, "Doctor, I want this tooth out. I was up to your neighbor's, and he would not take it out for me." She says, "I am going to have it out; he has been working at it a month or two trying to fix it up, and I have got to have it out." I says, "All right." She sat up in the chair; I cleaned the tooth out and put some medicine in. She says, "Ain't you going to take it out?" I says, "Not yet." "Well," she says, "it doesn't stop aching. What will I do?" I says, "Just sit still a minute," and in the course of about 10 minutes the tooth was getting easier. I fixed up the tooth and it was all right. In some way or other he had hurt it or injured it, and it was giving her lots of trouble, and aching. She was suffering ever so much, she complained, and had to have it taken out. Of course she was glad not to. I had another case: A lady came in, and she had very large teeth. She was foreign, and they, of course, were not nice to look at. She came in with a neighbor of hers, for whom I had put in a denture that helped her a great deal, and so she says, "I want my teeth all out so I can have in a set of teeth like the lady with her." I looked at them, and found she had a full set of teeth, upper and lower, and no decay. I told her I would not do that, and she insisted on it. I told her I could not do it, argued with her a long time, told her everything about it, why it should not be done, but she insisted on it, and finally the neighbor says, "Doctor, you might just as well do it; she certainly will have them out!' No, I told her, I couldn't do that at all; I wouldn't do it, that was all; I wouldn't mutilate her, as that would be for looks. Well, that was all. She finally left me and went away, and I thought I had done a pretty good thing. Along about six months after that time these two ladies came into the office again. One looked rather peculiar, and I says, "What is the matter with you?" She says, "You remember when I wanted you to take out the teeth and you wouldn't do it? I went to our doctor and he took them out, and now I want you to put them in.

President Morrison: Dr. Cobb, I think this answers your question. You are just starting out, and if you do it this time, you will do it the next. The good-will of the patient, if you save the teeth, will be more to you and will build up your practice and influence more, and be more to you in every way than if you let them go to some one else and have the teeth taken out. It would be worth more to you than all that you would get from extracting in your whole professional career.

Dr. J. F. Daly: I have always refused to extract any tooth that I didn't think ought to be extracted. I will say many times—I am answering Dr. Cobb's inquiry—that we country practitioners are almost forced to extract a tooth that we think ought not to be extracted, but I have had many cases where parents would bring in children where we know better than to extract, but the child has the parent as a guardian, and they would ask to have a tooth extracted for the child, when the child had nothing to say about it. Now, that class of teeth I have positively and absolutely refused to extract for children I knew I was doing an everlasting injury to, and I would not do it. They can get a doctor wherever they please and have it done. I have extracted teeth for grown people 30 or 40 years of age that seemed to know and insist that they should be extracted, and I presume that there isn't a man in the house but what has extracted teeth in his time, in 10 or 15 years' practice, that he thought ought not to be extracted. But I make a difference whether it is a child or whether a person 30 or 40 or 50 years old. They ought to know better.

Dr. McCleery: What is the difference between a child that don't know and a man that don't know?

Dr. Daly: The child is under the guidance of the parent, that ought to know more, and they do not, and I feel it would be imposing more than on a grown person.

Dr. McCleery: If a parent wanted their own teeth out, and didn't know, wouldn't it be just as wicked?

Dr. Daly: No; I don't think so; I feel that I would be doing the child an injury, whereas I don't care so much if the parent insists on it. I tell them how they will miss it, and they still insist on it; that is a different proposition from a child sitting in the chair and don't know that they are going to be injured. I draw a line there.

President Morrison: Punish the child's father for ignorance, but don't punish the child for the ignorance of the father.

Dr. Harris: If a patient has confidence enough in me to come to my office to have work done, I expect the patient to have enough confidence in my judgment to allow me to say what shall be done. There is one point where it is a back tooth and does not show. I try to argue to that patient that it is a back tooth and that it means our health. The front teeth we use for looks; they look well. The back teeth are the ones from which we derive our benefit, and I try to show to my patients that they are essential and necessary, and if, in my judgment, that tooth would not be saved, I will extract it, otherwise I will save it in some way.

Dr. Warren: Just a moment—one point in reference to a great many patients who come in and say, "Well, I really can't afford to have that filled." Now, if I think that is true, I say to that patient, "If you cannot afford to pay for the treatment and filling, you cannot afford to pay for the extraction, and I will, therefore, extract it for nothing." That makes them mad sometimes, but I will have Dr. McCleery understand that I am not so rambunctious in the office as I am here; I am more suave, although I am positive when it comes to the question of extraction. I had an experience 20 years ago this year. It was in the early days of crown-work. A lady came in for whom I had made a partial plate. I was the only dentist in the town at that time—a very unfortunate position, by the way—and she wanted the left lateral extracted. I explained to her how we could cut that lateral off, treat it thoroughly, and put on a crown and attach the central to it, making a nice piece of work and throwing her plate away; how nice that would be. No; she would not do it. "Well, I will just have to say, then, Mrs. So-and-So, that I will not extract it; that is all there is to it." I knew her pretty well. She went to one of the physicians and he wouldn't extract it. There were three physicians there, and none of them would extract that tooth, and she was madder than the "Dickens", but she finally came back and said, "You can do as you please with it." She has thanked me many times and sent me a good many patients.

Dr. Vance: We all know that you would refuse to extract a central incisor, but would you refuse to put a gold crown on a central incisor?

Dr. Warren: That is an aspersion Dr. Vance is casting upon me just for meanness.

Dr. H. E. Eells: There have been some things said here that have been very good. I remember of a patient coming to my office lately that caused me to think considerably. This was regarding a girl of about 10 or 12 years of age. She came to my office the other day and she had just previously had a first molar extracted. By the way, I have a rule, always before I extract to explain the importance of that tooth. I explained to the mother the importance of that tooth and what the child lost by having that extracted. She made the remark, "Had I known that I never would have had that tooth extracted." I didn't do the extracting in this case. Now, we as dentists must discharge our duty as professional men by telling them the importance of these teeth. I heard Dr. A. W. Harlan say in the fall of '95 or spring of '96, "These teeth are worth just what we value them at." I remember I was only a freshman at the time, and his words were impressed on my mind so that I never forgot them. He said, "Some do not value them at 50 cents, and want them pulled out." He says, "Others value them at a dollar and are willing to have a filling put in. Some will put on them a value of $5 or $10 and have them crowned. But," he says, "for me, I would not take a thousand dollars for these teeth in my head." That was his remark. Now, if we can impress upon our patients the importance of these teeth and what they are given to us for, then they will take into consideration the value of them, and not so much a few dollars and cents, and we as dentists should first impress upon the minds of our patients and educate them to the importance of what the teeth are for to the use of the body and our health.

According to Dr. Warren's language, we don't always practice what we preach. He said he is not always as rambunctious as he is here. But I feel that if I extract some of these that I will get a black eye when I get before Saint Peter.

REPORT OF COMMITTEES ON NECROLOGY AND REORGANIZATION.*

President Morrison: There were some committees appointed at the opening of this meeting. We can have now the report of two of these committees, and we had better take them up at this time. The first will be the report as to the death of Dr. Shriver and Dr. Skeede.

Report read by President Morrison as follows:

Whereas, It has pleased the Almighty Ruler of the Universe to remove from our midst Dr. Henry W. Shriver, of Omaha, and Dr. T. F. Skeede, of Seward, we, the members of the Nebraska State Dental Society, extend to the bereaved families of our departed brothers our sincere sympathy, assuring them that, while autumn shall make sear and yellow the mounds that mark the final resting places of their bodies, their memory shall ever be kept green in our hearts.

The secretary is instructed to spread these resolutions on the records of the society and forward a copy to their families.

Fraternally,

W. H. SHERRADEN,
A. O. HUNT,
H. T. KING,
Committee.

Moved and seconded that the resolution be separated and placed in two resolutions, separate copies sent to the relatives of the departed and engrossed as separate resolutions upon the minutes of the society, and that the report be then adopted. Carried.

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*Read before the Nebraska State Dental Society, 1907.

REPORT ON REORGANIZATION.

President Morrison: We have the report of another committee, the committee on reorganization.

Dr. Dameron: I want to say, on behalf of this committee, that I never saw or appointed a committee that worked so hard. They have put in the entire afternoon, and they have brought in a report that I know we all want to hear, and we all want to pay strict attention to, and if one is not pretty well posted they will have an opportunity now to get posted on what this committee is going to do. We want your strict attention for the report of this committee. In working out this plan of reorganization, we found necessary to make the following changes in the constitution:

In Art. 1 of the constitution, add to Sec. 2 to make it read as follows: "This society shall be divided into a suitable number of divisions, to be determined by the executive committee." In Art. 3 we have changed Sec. 2 to read as follows: "Active members shall consist of dentists who are practicing their profession in the state of Nebraska and adjoining counties of neighboring states, provided they hold membership in their district society. They shall be elected as now provided." To Art. 4 we have added to Sec. 2 as follows: "The officers of the district society shall be as they see fit." Under the by-laws the only change was in Art. 1, Sec. 2, as follows: "The meetings of the district societies shall be held as often as they desire, but must convene twice a year."

Sec. A—Now, in dividing the state into districts we have placed the following counties into the First District: Sheridan, Cherry, Grant, Hooker, Thomas, Blaine, Brown, Keyapaha, Boyd, Rock, Loup, Garfield, Wheeler, Holt, Knox, Antelope, Boone, Platte, Madison, Pierce, Cedar, Dixon, Wayne, Stanton, Colfax, Dodge, Cuming, Thurston, Dakota, Burt, Washington, Nance.

Second District to be composed of Saunders, Douglas, Sarpy.

Third District to be composed of Lancaster, Cass, Otoe.

Fourth District to be composed of Saline, Thayer, Jefferson, Gage, Johnson, Pawnee, Nemaha, Richardson.

Fifth District to be composed of Adams, Clay, Hamilton, York, Seward, Butler, Polk, Merrick.

Sixth District to be composed of Perkins, Chase, Dundy, Hitchcock, Hayes, Frontier, Red Willow, Furnas, Gosper, Phelps, Harlan, Franklin, Kearney, Webster, Nuckolls, Fillmore.

Seventh District to be composed of Greeley, Valley, Sherman, Howard, Hall, Buffalo, Dawson, Custer, Logan, Lincoln, Keith, McPherson, Deuel, Cheyenne, Boxbutte, Dawes, Sioux, Scotts Bluffs, Banner, Kimball.

Sec. B—In making these divisions, your committee has left intact the Northeastern Dental Society, Southern Nebraska Dental Society, and the Central Nebraska Dental Society; thus we have three districts practically organized. One of the plans we are working on now is that the business of the Nebraska State Society will be done through these district societies; they can help arrange the program, secure new members and collect all dues.

There will be a chief organizer, and each division a district organizer.

To these positions the president has appointed the following:

Chief organizer, T. B. Dameron, Lincoln; 1st District, C. E. Brown, Emerson; 2nd District, Dr. Wallace, Omaha; 3rd District, P. J. Morton, Lincoln; 4th District, Blaine Branson, Beatrice; 5th District, Arthur Douglas, Hastings; 6th District, J. M. Prime, Oxford; 7th District, C. C. Farrell, Cozad.

The district organizers will report to the chief organizer and he will report to the state society through its executive committee.

F. B. DAMERON, Lincoln;
J. H. WALLACE, Omaha;
C. E. BROWN, Emerson;
Committee.

Report adopted as read.

EXCHANGE OF PRACTICAL IDEAS

THE REINFORCING OF BACKINGS TO PREVENT CHECKING IN SOLDERING AND FRACTURE IN MASTICATION.

By W. C. Dorsey, D. D. S., Baltimore, Md.

The reinforcing of backings to prevent checking in soldering and fracture in mastication, is applied exclusively in use of the six anterior teeth, above and below.

The facings are beveled slightly or medium at the cutting edge, a piece of No. 30 gauge 22k. Ney's plate burnished closely and well adapted over back of facing and cutting edge, a second piece of No. 30 gauge, 22k. Ney's plate, burnished over first piece extending for cutting to edge of pins in facing. Remove first and second pieces of gold that were burnished to facing and with small soldering pliers place them together, wiping a solution of borax between the plates and with three small pieces of 20k. solder, solder together, then adjust on facing and grind excess gold and burnish to facing. In investing these facings in bridge-work the investment may come nearly down as far as pins, as no solder need go beyond covering over the ends of the pins in backing. In using two thickness of backing with bevel over cutting edge, soldered together, great strength is accomplished and no need will be required in extending solder to cutting edge and endanger a running of flux over on porcelain and risking checking.

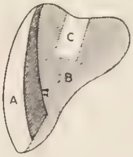
The bevel on cutting edge also prevents the mastication coming directly in contact with the porcelain facing, as patient strikes the gold backing in its stead. I have practiced this method ten years and as yet, have not had a single case to fracture in soldering nor a break in facing from mastication. I find this method can be handled nearly as quickly as the other.

A HINT IN PORCELAIN CROWN AND BRIDGE-WORK.

By H. J. Friedman, D. D. S., Cleveland, Ohio.

If you are interested in porcelain-work, especially as applied to crown-work, the following is very good practice for a beginner, at least I have found it to be the case:

Take the six anterior teeth of a set of Twentieth Century vulcanite teeth, and grind off the pins and lingual surface, so that you have simply a veneer left, as seen in the accompanying illustration. Then add the desired shade of foundation body to it, and carve a hole to accommodate a dowel, and bake, then add your enamel body and bake.



A—Twentieth Century Tooth. Heavy shading represents amount to be ground off.
B—New porcelain.
C—Hole for dowel.

Do this with a few teeth, always trying to bring out certain characteristics.

RESULT.

When occasion demands the excision of the natural crown for an artificial substitute, you have a varied selection of porcelain crowns on hand that can be ground to place, and worn by the patient during the time you are constructing the permanent piece of work.

HANDY PLASTER BOWL.

You can make a very neat and handy plaster bowl for mixing small amounts of plaster, or investment material, by cutting off the nipple portion of your old chip blower.

SUGGESTIONS

TO REMOVE COTTON WOUND AROUND A BROACH.

R. E. Sparks, Kingston, Canada.

Scrape bright the side of the shank corresponding to the smooth side of the broach. This will serve as an indicator when the broach is wound. Lay the broach, barb side down, flat upon a glass slab or other smooth surface. With a knife cut the cotton clear of the broach throughout its entire length. Turn the broach over and draw the knife blade lightly backwards over the part covered with cotton. This will disengage the cotton from the barbs.—*Dental Review.*

A METHOD OF REPLACING A PORCELAIN FRONT ON A CROWN OR BRIDGE.

By A. A. Matthews (Bradford), L. D. S., England.

The particular instance which called for treatment was a small bridge case where a first upper bicuspid was an all-gold crown carrying a canine which so overlapped it that a Bryant's outfit was not applicable. The gold crown was too close behind the canine backing to allow of nuts being adjusted to the tapped pins of a new facing.

The plan adopted was as follows: A suitable tooth was selected and a hole made through it between the pins with a diamond drill (the pins not being required were filed off close to the tooth), the facing was fitted to the mouth, placed on the backing, and a mark made with an instrument through the hole. At this point a hole was drilled and tapped so as to take a screw made by tapping a bolt used for "springs." The screw was then fixed into the gold back and cut off at the front, so that the end came just below the surface of the artificial tooth. The hole in the backing and the screw were well cleaned with alcohol and dried, and the facing put into position with Harvard cement.

At a later sitting part of the cement was removed and replaced by a porcelain inlay. Several slight variations of the method were shown illustrating how such repairs can be effected by working entirely from the front and avoiding the difficulty sometimes met with of manipulating nuts, or making other adjustments from the lingual aspect.—*British Dental Journal.*

A WAY TO OBTAIN CORRECTLY OCCLUDING CUSPS FOR GOLD CAPS.

J. E. Dunwoody, Philadelphia.

After the band for the crown has been made it is put on the tooth, and after placing in it a small amount of modeling composition, the patient is instructed to close the teeth. The band is removed, together with the modeling composition, and the cusp is properly carved to articulate with the opposing teeth and to fit the shape of the band. After removing all the composition from the inside of the band, leaving only the cusp to be reproduced, the latter is placed flat side down on a glass slab, and a mixture of two-thirds plaster and one-third medium marble dust is poured over it. After it has hardened, and without using borax, gold is melted into the impression of the cusp until the latter is full, and is then forced down into the impression with a piece of charcoal to insure the copying of every indentation of the cusp. The resulting cusp will be a perfect reproduction of the modeling composition, and will be found to have the exact circumference of the band and to articulate correctly.—*Dental Cosmos.*

REINFORCED PORCELAIN-FACE SHELL CROWN.

W. S. Rose, Schenectady.

Construct a two-piece shell crown of 23-karat gold, using any good flux to fuse the parts together. As no solder is employed, this gives practically a seamless shell. Reinforce the cusps of the shell, or of an Evans crown, with pieces of 22-karat plate. Saw out the face, leaving a point of attachment near the cervix. Depress this piece for a backing, and bake a facing of Jenkins' porcelain. The prosthetic body may be used if desired.—*Dental Cosmos.*

A METHOD OF BRIDGE ATTACHMENT.

N. P. Bugbee, Springfield.

This clinic consisted of the demonstration of a bridge extending from the first molar to the first bicuspid. A gold cap was placed over the molar, and, as the bicuspid had a large gold filling on the distal surface, a groove was made in the filling and a bar to rest in this slot, thus allowing for the movement of the teeth as in a normal articulation. Where teeth are banded by crowns on both abutments this movement is lost and the value of the teeth impaired.—*Dental Cosmos.*

A PROCESS OF BURNISHING GOLD.

A. J. Cutting, Southington, Conn.

Dr. Cutting's method consists of using either cylinder or foil, and with smooth points of suitable shapes that will reach every part of the cavity, of rubbing or burnishing each piece to place. Anneal the gold as required and use blued instruments, made so by the application of heat. No larger piece of gold should be used than one that can be thoroughly condensed by the pressure of the burnisher.—*Dental Cosmos.*

THE RIGHT LIGHT.

The *wall tints of the operating room* have an ocular value, and should vary according to the kind and amount of the general illumination. If a north (or west) light be generally used dull cream, light buff, or light green paper, paint, calcimine or burlap may be used with benefit. If the light be from the east or south, still darker tints are unobjectionable. In other words, while always using soft, *unglazed* colors these may be made to vary with the intensity of the light admitted to the operating room—the brighter the illumination the darker the wall tints. Let me repeat, glazed paper, or other objects that strongly reflect light into the eyes of the operator should be banished from the dentist's operating room.—*Dental Review.*

THE HYPODERMIC NEEDLE.

Frank Pollard.

Before inserting the needle apply a drop of chloroform to the skin; it is antiseptic and anesthetic.—*American Journal of Clinical Medicine.*

MAKING A DENTURE.

C. H. Land, Detroit.

When I make a set of teeth I invariably cover the cast with tin-foil and make it perfectly smooth just like a mirror. Then I pack the rubber not in excess on the alveolar ridge, as it is important you should know when there is enough rubber there. Then I lay on the rubber a piece of the starched cloth that comes on the sheets of rubber, so as to be able to separate the flask for examination. In place of bringing the flask down with the ordinary force, where there is not enough rubber put into the flask to fill it, I put in a slight excess and close the flask in boiling water, allowing the excess to escape to the center of the mold.

Separate the flask and you will find that in place of forcing the rubber to the outside you have closed the outside and have used the center for the escape, and you will find that it is filled with no excessive pressure on the center. No denture is injured unless you make excessive pressure on the center. If you do make pressure on the outside it does no harm unless it should shrink a little.

A flat mouth is not nearly so easily injured as a high arch, because if you fill the center with rubber you are going to expand it both ways in the center; there is absolutely no guess work about it at all. I always know what I am getting, for when the denture is vulcanized it comes out as bright as a mirror.—*Dental Register.*

CARBORUNDUM.

The carborundum stone is a synthetical product of much interest, some romance and more use.

Carborundum is the best abrasive we have and will do more and better work in the mouth than any other, but these wheels need some attention not always accorded them. For instance—how many men ever disinfect them after using in the mouth? Not one in a hundred.

Three stones were taken from the cases of as many friends, and twenty kinds of bacteria were isolated. To be sure, none of these happened to be of a pathogenic nature, but that might not always happen. These stones are very porous and especially fitted to absorb the fluids of the mouth. And again, their very action in bruising and rubbing the flesh is well calculated to secure entrance and permanent lodgment to any itinerant and home-seeking germ. It is not safe to use these instruments a second time without sterilization. How best to sterilize them is somewhat a matter of opinion. Carborundum will stand a very high degree of heat, and it has been my custom, after washing them, to heat them hot in a Bunsen flame. This is without question an effective method and not very inconvenient. Another way is to use a light solution of formalin, but they soak this up and remain wet a long time, and this is harder on them than heat.

Carborundum stones are very prone to get out of true, in fact nearly all of them proceed to do this immediately, which at once impairs their usefulness and in most cases eventually destroys it altogether, long before the stone is worn out. They can be brought into true again by rubbing against another stone of the same material. Mount the stone to be trued upon a mandril as usual, chuck it in your engine hand-piece and run it against a larger one running in the lathe. Fix up some kind of a hand rest out of a block of wood or a small box. This process is always worth while and frequently the result is a stone superior to the original.

Stones will run truer and throw much less dust, in dry grinding, if soaked in melted paraffine for a few minutes. After their paraffine bath, take them out and lay upon paper. The paper will absorb the surplus and they will not be "slazy" and disagreeable to the touch. With a stone treated in this manner, one can grind a facing or tooth out of the mouth and not be compelled to inhale half of the porcelain removed. To be sure, a stone treated in this manner can not be heated red hot, but it is put in a very excellent condition to be disinfected with some liquid, without injury and effectively.—*C. C. A., Articulator.*

HOW TO MAKE A PERFECT JOINT BETWEEN ROOT AND PORCELAIN CROWN.

N. H. Myers, Wilkes-Barre, Pa.

After preparing the root in the usual way for the reception of a porcelain crown, place a small quantity of base-plate gutta-percha in the root-canal; then heat the dowel sufficiently to soften the gutta-percha and insert it in the root-canal, care being taken to place the crown in proper alignment with the adjoining teeth. After the gutta-percha has hardened sufficiently, gently loosen and remove the crown and pin from the root, thus forming nearly a perfect mold of the pin in the root-canal, which will serve to hold the crown in the same position in the arch at each subsequent insertion. I now take a small strip of carbon paper, the thinner the better, and make a hole through it with the rubber-dam punch sufficiently large to accommodate the pin. By passing the pin through the hole, returning it to the root-canal, and pressing gently on the crown, your carbon paper will show the parts that touch first. By the use of stones or burs remove these darkened spots and bring the crown to place again, repeating this until the carbon shows itself on the entire surface of the root or crown; then a perfect joint will exist. Whether one wishes to set the crown with gutta-percha or cement, the previously inserted gutta-percha should be allowed to remain intact in the root-canal.—*Dental Cosmos.*

REMAKING A PLATE WITHOUT A NEW IMPRESSION.

J. Neelands, L. D. S., Lindsay.

A lady, living in the Province of Saskatchewan, recently sent a full upper denture to be repaired or remade. They were so badly broken and in so many pieces that it was found impossible to repair with any hope of permanency. The plan adopted may not be new to the profession, but I decided to make a model by sticking all the pieces together with sealing wax. Some parts were entirely gone, and had to be substituted with wax. Then the plate was invested in the ordinary way in the flask. When the plaster had set, the sealing wax, which held the pieces together, was removed and a thin coating of beeswax was placed over the old rubber plate to make allowance for scraping and polishing. When this was done the old plate, teeth and plaster surrounding was freely coated with oil. The upper half of flask was then filled with plaster. It was let stand only about ten or fifteen minutes so that the plaster would not set too hard around the teeth. The flask was then separated by placing a blade of a knife between the parts, leaving a nice impression of the teeth in the plaster of upper half of flask. The lower half of flask, containing the old plate and teeth, was held over a spirit lamp, when the teeth were easily removed and replaced in their respective positions in the plaster impression in upper part of flask. There was no trouble in picking out the old rubber plate when heated. All that had to be done was to pack and vulcanize in the ordinary way. The plate was mailed to the patient, when she wrote, expressing the greatest satisfaction, and saying they were a splendid fit.—*Dominion Dental Journal.*

ON THE SEPARATION OF PLATINUM, GOLD AND SILVER FROM A MIXTURE OF LABORATORY FILINGS.

L. Lemerle, Professor at the Ecole Dentaire of Paris.

The method about to be described of separating platinum, gold, and silver from laboratory filings is the one followed by a well known Parisian firm of assayers. The quantities of the different chemical reagents and the substances given throughout this review are the quantities to be employed in treating a weight of filings of about 100 gm.

Dissolution. Place in a glass globe of one-liter capacity the quantity of filings to be treated and a mixture of 150 gm. nitric acid C. P. and 450 gm. hydrochloric acid. Heat the globe over a dull fire or in a sand-bath.

Evaporation. When the filings have been dissolved pour out the contents of the glass globe into a porcelain dish, and evaporate the fluid slowly to a syrup consistence. Now add to the syrup fluid 100 gm. of hydrochloric acid, and cover the dish with a funnel to prevent any portion of the liquid from splashing out on account of the active reaction which takes place upon the addition of the hydrochloric acid. When the reaction is completed, evaporate the solution as in the previous case, to expel the excess of acid.

Separation of Silver. Add to the liquid 300 gm. of distilled water, and heat for about one hour in order to complete the precipitation of silver chlorid. Filter and collect the filtrate in a glass of 750 ccm. capicity. The precipitate of silver chlorid which remains in the filter is washed three or four times with boiling water, and this water is added to the filtered solution.

Separation of platinum. To the filtered solution 150 gm. of pulverized ammonium chlorid are added, and the contents of the glass are stirred with a glass rod and allowed to decant for at least six hours. The platinum will now be found precipitated in the form of chloro-platinate of ammonia. The platinum precipitate is now collected by filtering, and is washed with 200 gm. of cold water to which 30 gm. of sal ammoniac have been added. The platinum precipitate and water are again filtered and the liquid is collected in a glass receptacle of one-liter capacity.

Separation of gold. In the latter receptacle, 100 gm. of crystals of ferrous sulfate are dissolved, stirring the mixture from time to time with a glass rod, and allowing it to decant for eight to ten hours. The gold is slowly precipitated in the form of a brownish powder. The contents of the glass receptacle are now filtered in order to collect the brown powder, which should be thoroughly washed, as in the case of the silver chlorid.

The separation of the precious metals being now completed, it remains to convert the products thus obtained into metallic form.

After having been completely dried, the silver chlorid is placed, together with the filter in which it is held, in a crucible, where it is fused with a mixture composed of three times its weight of sodium carbonate and four per cent. of its weight of charcoal. After the mass has been fused and cooled, the crucible is broken and the silver ingot is removed. The chloro-platinate of ammonia is detached from the filter and the paper is burned in a porcelain dish, in order to collect the small particles of platinate that may have remained attached to the paper. Into the same porcelain dish the platinate is placed and calcined, heating the dish slowly and progressively and carrying it eventually to a white heat, at which point it should remain until the evolution of the white fumes has ceased. The gold is treated by the same process as described in the case of silver, with the exception that instead of the sodium carbonate and charcoal mixture it is fused with three times its weight of borax and once its weight of saltpeter.—*Dental Cosmos.*

BENT-WIRE CLASPS.

S. H. Guilford.

The greatest improvement in clasps as plate supports consists in forming them of round or half-round platinous gold wire bent upon itself or doubled and so shaped as to include in its grasp as much of the circumference of the tooth as clasps usually do.

This open or bent wire clasp by its form possesses the peculiar advantage of having one of its folds just above the greatest diameter of the crown and the other just below it. By this means the tooth is not only more firmly grasped, but the clasp by virtue of its shape can neither slip up toward the gum nor down toward the occlusal surface.

This form of clasp is far more correct in principle than the former kind where the flat surface of the clasp, in contact with the convex surface of the tooth, was intended to afford the desired resistance.—*Stomatologist.*

IMPRESSION FOR GOLD INLAY.

W. H. Taggart, Chicago.

Let us suppose that we have a proximal cavity in a bicuspid, and a molar is adjoining it. I take an impression by bending a piece of metal at right angles, and in that I place the dental manufacturing modeling compound, because it is a low heat material. I press it to place and get an overflow. I then take it out of the cavity, chill with ice water, trim away the overflow, leaving one thirty-second of an inch that is not in contact with the margin, and place it into the cavity again. It will go in like an inlay. I now place a wedge in proximally, and, with pressure on the grinding surface, drop warm water on very slowly until I see it is yielding under the pressure, and then reset it. After chilling it and taking it out I have an impression which is as accurate as an inlay should be with no element of uncertainity as to whether the margins have been distorted or not.—*Dental Review.*

PROSTHETIC SUGGESTIONS.

N. S. Hoff, Ann Arbor, Mich.

In the preparation of the models themselves for the vulcanizing process, we often make the mistake of saturating them with water after we have secured the model, or in boiling out the wax. We ought never to do this; a plaster model that is very hard and dense, if simply dropped into water for thirty seconds and taken out, can be whittled very easily. If you have a very thin model it will soak up enough water in a short time to sufficiently destroy its integrity to cause it to break under the pressure put upon it in closing the flask.

In the matter of flasking these pieces, I have not yet found a flask that is at all to my notion. All of our flasks are not deep enough. You cannot put into any of the brass flasks on the market an ordinary model with the teeth on it and have more than perhaps half an inch of plaster over the palate where the great amount of pressure is usually brought to bear. Sometimes models here are cut down to possibly one-eighth of an inch, so that you can hold them up to the light and almost see through them. You cannot expect a model of that kind to stand the enormous pressure of two tons that Dr. Prothero says is frequently put upon such a model, without its fracturing. The support that you get from the investing plaster is not sufficient to support such a thin model. If the model could be made thick enough it would withstand the pressure without giving way. The flasks should be at least 3-4 inches deeper than they are.

In connection with packing the flask another thing might be mentioned. We usually close them in boiling water and put in so much rubber that we cannot possibly get the flask together, and then we boil for ten or twenty minutes to get the vulcanite to flow away in order to get the flask together.

This boiling of the plaster must disintegrate it and destroy its integrity.

In the matter of cutting gateways in the investment we often make a mistake. The ordinary method of simply cutting grooves from the matrix to the rim of the flask is a mistake. A better plan is the method advocated by Dr. Snow, which is to cut a groove in the plaster investment all the way around the flask at its outer edge, cutting it deep towards the flask and beveling it to the edge of the matrix so that as the flask goes together there is plenty of space for all the excess of vulcanite to flow out, but when the flask is entirely closed the two edges of the investment come in contact and no more of the vulcanite can escape. During the process of heating the vulcanite swells and expands until you get to the vulcanizing point where it begins to carbonize and harden, and then it begins to shrink upon itself. If you have gateways that carry off the excess of vulcanite it never gets any pressure, because the vulcanite flows away and never gets back into the matrix, and as the vulcanite in the mold shrinks, it draws away from the model or from the teeth, leaving spaces about the teeth.

In this form of investment we should use the Donham Spring Clamp to hold the flasks together, as the pressure, of course, must be enormous if we use the ordinary bolts for holding the flask together. As the vulcanite swells in the process of heating these springs allow the flask to open, and as it hardens it comes back together. In this way we get the vulcanite hardened in the most perfect manner, and avoid its shrinking away from the teeth. We should vulcanize all rubber under spring pressure and get rid of the enormous pressure that we would otherwise subject the plaster mold to if we have only the bolts and screws. We do not pack vulcanite with the care we should. We do not even go to the trouble of warming the flask, and we cut great strips of vulcanite and put them in the flask cold, and try to screw them together in boiling water and expect to get good results. It is remarkable that we get as good results as we do from this slovenly method. The fact that we get any desirable results from the process, it seems to me, is a great compliment to the vulcanite, demonstrating that it is an exceedingly tractable material and can withstand a great amount of abuse without resenting it.

If we would take more pains we should get more sanitary plates, and I have no doubt that we should be surprised that our vulcanite plates fit so much better than they did when we did not take into account these methods. A large number of dentists make vulcanite plates, probably many more of them than of any other kind. We ought to make them in the best possible manner or not at all. Because they can be made so easily they are often done by the office boy or some equally inexperienced or unintelligent person. It is entirely unprofessional for us not to study the details of this work and do it as it should be done.—*Dental Register.*

CONSTRUCTING AN HYGIENIC PORCELAIN BRIDGE.

C. H. Land, Detroit.

I have a combination of amalgam and gutta-percha, like putty. I pack it into a tooth, then drive a peg and hook combined into it and let it harden, and that forms an abutment for a removable bridge. Any old root can be utilized, and use no cement, or both combined. As soon as it is hardened, you can put a high finish on the amalgam and it will keep its color for years. Make a tube that fits over the hook, and then you can vulcanize teeth on the tubes, which, when completed, is a substantially removable bridge. It is as easy and cheap as falling off a log. Then I have another way of anchoring an approximately formed porcelain molar or bicuspid that is pretty near its proper size in the root, and putting a short gold cap on the top of them and getting rid of the irritating tendency. I make bridges of short metal caps that do not come in too close contact with gum tissue, principally on round piers, and then form a tube matrix to fit over the piers, and make a tube tooth to fit over the posts. The whole system of bridge-work should be established on individual posts; the more you can practice making the individual tooth the more natural they are, and the easier they are to repair in case of accident. I have arrived at that stage of the art where I very seldom have to make a long, continuous bridge, which is generally more unsanitary than the teeth where you have the open spaces. Since the subject has come up, I will tell you what my experience has been in regard to platinum bridge-work. It is a very difficult thing to make, and unless a man has had considerable experience and made a whole lot of blunders, he is apt to do what I did, *i. e.*, learn it by hard work and at a great expense. The more platinum you have covered with a vitreous mass, and the heavier the platinum, the poorer the bridge that you fire on it. If you make a post and cement it on, it is four times stronger than if you fire it on, because the firing bursts the porcelain. There are hundreds of men making bridges that are beautiful to look at, but they are like the cat—they come back every time. They are very expensive, and I have adopted the post-bridge idea. They are cheaper and stronger. The porcelain itself is stronger. The weakest part of any bridge is the porcelain. A crown in a tube form is always stronger than a crown baked on a pin. It is probably three times as strong when it is cemented on a pin. I make a tube matrix and cement these all after the bridge foundation is made, and if they break it is easy to put them on again. At my clinic some of you have seen how I produce foundation forms out of moldable porcelain. All you have to do is to solder a few metal cups or posts on a bar or wire. I will give you a set of models in which you can make all forms of teeth.

Another point I have discovered in baking is that there are a great many men who have been advocating the baking of porcelain in a kind of cup. I suppose you have all seen the glass that looks like frosted work on the windows, and you never see two designs exactly the same. You may know how it is made, and you may not, but I will tell you how to make it. Take about a quarter of an inch of glue and put it all over the glass and let it dry, and the adhesion the glue has for the glass is so great that it rips the design off when it shrinks. That is what takes place when you bake porcelain on a solid piece of platinum. When the platinum cools the porcelain is ripped off. The difference between the shrinkage of the platinum and the porcelain is the cause. That is the reason why I am using the thin tube matrix, because that is too thin to make that difference in shrinkage, and then when you cement them over a post they are a great deal stronger and better, and you can always find your post to reset them when an accident happens. You save your patient a whole lot of expense and trouble and irritation.

Dean Willmott—That is nearly coming down to making bridges of Davis' crowns.

Dr. Land—I have made bridges of the Diatoric crown. There is one thing I have forgotten to tell you; that is the media. I will take the diatoric teeth with the holes in them, and without any further ceremony bake the media inside, and on the bottom cement them on posts. I have some of these which have been in use four years. Another method I tried that has been successful, although I do not know how practical it is going to be as a permanent device, is one which I invented in 1891 for the amalgamation of porcelain to the natural teeth and to artificial dentures. This was the principle of my success: I would fuse a biscuited surface on the contact side of a higher fusing body than that of which the tooth was made, but it would cling to it, that is, it would be rough; it would be fired on the end of the tooth. I then take the ordinary china decorator's liquid gold and paint it on the biscuited surface, and fire that on as they do in china decorating; then I take amalgam and put it down in the root and adjust that crown to it. If it were a bridge I would put it over the post and adapt the amalgam to a gold coat, and would have an amalgamated bridge that I could polish before it was put in. The tests I have made on amalgamating with gold and biscuited surfaces have sustained a resistance equal to 150 pounds to the square inch. I have specimens now that I have exhibited before the Connecticut Valley Dental Association in 1888-9 that are still holding in the same way. But I have found cements cleaner, and if they wear out a little put in another plug.—*Dominion Dental Journal.*

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COMPILATIONS

MISCONCEPTIONS CONCERNING PORCELAIN.

By Louis Ladewich, D. D. S., Chicago, Ill.

The first misconception relates to its strength. Porcelain is stronger than it gets credit for, though this misconception is natural in view of the experience the profession has had with it. Porcelain as generally used by the profession is no stronger than its reputation indicates, but porcelain properly manipulated is one of the most serviceable materials that can be used under its proper indications.

One of its chief functions is for use in jacket or shell crowns, where if judiciously employed it is capable of a wide range of usefulness. It may be made to restore a badly broken-down incisor where inlays would be treacherous, and where ordinary crowning would call for destruction of the pulp and would introduce the problem of the pin in the canal with its manifest limitations as to danger of splitting the root or perforating it. It may be used as a means of bringing into alignment many cases of irregular anterior teeth without moving the roots by properly grinding the teeth and contouring the porcelain shells so as to line them up in regular order. I have had many cases of this kind of marked improvement without destroying any pulps. One of the misconceptions about porcelain for this class of work relates to the use of facings. Facings are contraindicated in building porcelain crowns. The moment a facing is ground to fit the case its shade is changed and its strength reduced which can never be restored. More artistic and stronger work can be done by building the entire crown from the mix made by the dentist himself.

And in making the mix another misconception occurs.

It is fatal to the best results and the greatest density of porcelain to jar the body into place as is usually done. When a mass of wet porcelain is jarred it causes air bubbles to settle toward the bottom of the mass, and the more it is jarred the larger are the bubbles. This may be proved by placing porcelain on the end of a spatula and jarring it. Then examine it with a glass, and it will be found full of bubbles near the bottom of the mass. Porcelain should be gently pressed or wiped into place with a spatula, in such a manner as to constitute a burnishing of the porcelain. When built up in this way it is very dense and strong and there is little shrinkage in fusing it. I seldom find it necessary to fuse a jacket crown more than once in any tooth anterior to a molar. I use the highest fusing body I can get.

A frequent use I make of the jacket crown is to employ it as a means of carrying a missing tooth. Where a single tooth has been lost in the arch I grind one of the adjacent teeth and make a jacket crown for it. I then trephine the process where the tooth was lost and make a porcelain tooth—crown and root—to fit into the vacant space. The two are fused together with porcelain and adjusted to position—the jacket cemented and the attached tooth implanted. Some of these cases have been in the mouth for more than a year and are still doing good service.

In grinding natural teeth for jacket crowns I invariably keep them dry, directing a jet of compressed air immediately at the point where the stone or bur touches the tooth. By this means I am usually able to grind the most sensitive tooth with little discomfort. But there must be no hesitation or misdirected manipulation. The operator must know in advance precisely the form he wishes to give the tooth, and then go directly to that form. It should never take more than ten, or at most fifteen minutes, to grind down any tooth for a jacket crown. In truing up the walls and making a shoulder at the gingival margin I use sharp fissure burs. And they must be sharp. The moment a stone is not true or a bur is the least dull it is discarded. I have used as many as six burs in preparing a tooth for a crown.

The gauge of platinum used for the matrix is 1-1000 of an inch, and it is simply wrapped around the tooth and fitted without soldering. In this way it can be easily peeled from the inside of the crown after fusing. The platinum used should be fresh from the manufacturer and not subjected to the slightest manipulation previous to being adjusted to the tooth. I buy mine by the ounce to be assured that it is not handled by the dealer in any way. Platinum under these conditions is almost as adaptable and soft as tin foil, but it is quickly hardened and stiffened by manipulation.

The possibilities of porcelain in this work are well nigh unlimited, and if any of the statements herein made seem radical or unreasonable I can only add that they are capable of demonstration at any time. Porcelain inlays have been heralded throughout the world, but porcelain jacket crowns are capable of a far wider range of usefulness than inlays.—Dental Review.

CORRESPONDENCE

DR. W. D. MILLER.

Dear Doctor Bethel—We have just received the first news of Prof. Miller's death. It brings a great shock and deep grief to us here, where he lived so long and did his splendid work, and where he was so singularly beloved and honored, by Germans and Americans alike.

As you will make note of his death in your Journal, it occurred to me that possibly you might be interested in a short account of the regard in which he was held in Berlin:

He was a man filled with the milk of human kindness and widely known for his friendly counsel, as well as substantial aid to young Americans abroad. This magnificent and far-seeing older man at once recognized the real man in young Miller, who was induced through Dr. Abbot to devote his life to the scientific aspects of dentistry, much needed in those days. After taking his dental degree in America, Prof. Miller associated himself with Dr. Abbot's practice, was married to his daughter, and, after the death of his father-in-law, succeeded to the practice, which he conducted with distinction until the completion of his fiftieth year, when he retired from practice, to devote his entire time and energy to scientific research and to the claims of his university position. What he accomplished in these directions you and the scientific world know.

When he decided to resign his chair in the Berlin University, in order to return to America—where we thought his greatest field of usefulness still lay before him—great efforts were made by the German authorities and by the profession to induce him to remain here.

He was regarded as absolute authority in his work, and his personal influence and popularity could scarcely be overestimated.

I believe he was the only American who has held a full professorship in the University of Berlin, and so far as I know, the only dentist to have had the title of Geheiner Medicinal Rath (usually spoken Geheimerath) conferred upon him. This title is considered a great distinction in Germany.

He was the idol of the W. D. Miller Club, an exclusive organization of American dentists. While in the American colony he was regarded as one of the most liberal and distinguished citizens, and foremost in every good work.

I served with him on the church committee for 12 years, during which time the American church was built. There, too, he was also looked upon as the leading spirit, whose opinions were sought and valued by the committee because of his rarely sane, just mind, which, looking for truth alone, could be trusted to see straight; a modern Christian of the best type.

The church will miss him greatly, and his profession and the colony, but more sadly still will he be missed by hundreds of the very poor, whose friend he was, giving to them regular and systematic help, both financial and moral, for many years. A Christmas with Prof. Miller meant his beautiful home filled with those humble people—literally, the lame, the halt and the blind—a most impressive and never-to-be-forgotten occasion to those permitted to witness it, but all this was done so quietly that for years I knew nothing of it.

In sport he had a boyish, almost childish delight and enthusiasm; he held several times the golf championship for Germany.

His mind reached out beyond the confines of professional work towards all subjects of interest, moral, intellectual, religious, and yet a more simple, modest, unassuming and generous man would be hard to find, or one who was a more delightful companion.

I think I never knew a better man than W. D. Miller. Ann Arbor, our alma mater, will never know how great her loss is in his death. Such men are sorely needed in this wicked world.

Sincerely and fraternally,

Berlin, Ger., Aug. 10, 1907. G. H. WATSON.

SOCIETY

RESOLUTIONS ON THE DEATH OF DR. W. D. MILLER.

Copy of resolutions presented by Hofrat Dr. N. S. Jenkins and unanimously adopted by the W. D. Miller Dental Club, Berlin, Germany, at a special meeting held August 6, 1907:

Whereas, Geheim Medicinalrat Professor Dr. Willoughby D. Miller, the great scientist and beloved friend for whom our club was named, has been removed by death, therefore,

Resolved, That in common with all the members of our profession, we deeply mourn our irreparable loss.

Resolved, That as we were united to him, not only by the admiration and respect which his scientific work spontaneously evolved, but also by the ties of warm personal friendship, we hereby pledge ourselves to cherish forever the memory of his example, which shall inspire us to higher devotion to our profession, to broader charity, to nobler living and to deeper compassion towards suffering humanity, whom he served so well and so unselfishly.

GEO. O. WEBSTER,
President.
E. D. BARROWS,
Secretary.

THE SOUTHERN ILLINOIS DENTAL ASSOCIATION.

The fifteenth annual meeting of the Southern Illinois Dental Society will be held in East St. Louis, Ill., on the 22nd and 23rd of October. The president and members of the executive committee are putting forth every effort to prepare an interesting program, and it is hoped that every dentist in our territory will do his part to make the meeting a memorable one.

HARRY K. BARNETT,
Secretary.

NEW JERSEY STATE BOARD OF REGISTRATION AND EXAMINATION.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination beginning Monday, December 9th, and continue through the 10th and 11th. Practical operating and practical prosthetic work will begin 8 a. m., Monday, December 9th. Photograph and preliminary credentials must accompany the application. Meeting held in the State House, Trenton, N. J.

For full information, address the secretary,

CHARLES A. MEEKER, D. D. S.,
29 Fulton St. Newark, N. J.

THE NEW HAMPSHIRE BOARD OF REGISTRATION.

The New Hampshire Board of Registration in Dentistry will hold its next meeting for examination, December 3-5, 1907, at Masonic Banquet Hall, Manchester, N. H.

A. J. SAWYER, D. D. S., Sec'y.

AFTERMATH

Dentist Injured.—Dr. R. H. Savage, a dentist of Sunbury, Pa., sustained severe injuries by falling from a scaffold of his new home, August 24.

Fined for Practicing Without a License.—Charged with practicing dentistry without a license, Willett McElwain, of Brooklyn, N. Y., was fined $50.

Fire destroyed the dental office of Dr. Chas. P. Barton, Spencer, Mass., August 16. The dental office of Dr. C. R. Vilas, Skowhegan, Me., damaged by fire $500, September 3.

Dentist Rescues Girl from Drowning.—Miss Theo. Hartshorn was rescued from drowning while learning to swim at Onset, Mass., August 22, by Andrew T. Hall, a dentist of Brockton, Mass.

Dr. Starbuck Is Called West.—Dr. A. W. Starbuck, formerly demonstrator of operative and prosthetic technique in the University of Iowa College of Dentistry, will join the faculty of the Colorado Dental College, at Denver.

Wheeling Dentist Starved.—Owing to a peculiar ailment of the throat, Dr. A. F. Beneke, a prominent young dentist of Wheeling, W. Va., died of starvation. The interior of his throat was rendered raw, and, as a result, he was unable to eat food.

Dental College to be Established in Halifax, N. S.—The report of the dental board with regard to the establishment of a maritime dental college at Halifax was favorably discussed, and a resolution instructing the board to establish a college as soon as possible was carried.

Dentist Scalded by Boiling Water.—Scalded by the bursting of the hot-water pipes, Dr. W. N. McKay, a dentist of Des Moines, Ia., is in a serious condition. The hot-water pipes bursted and the boiling water was thrown over the doctor. His limbs were so badly burned that on taking off his clothing the flesh came off with it from the knees to the ankles. While his condition is serious, it is not thought to be fatal, although some of the burns on the legs are very deep.—Daily paper.

Dentist Suicides.—Dr. W. H. Cain, Jr., a well-known young dentist of Houston, committed suicide August 21 at Palestine, Tex., by taking 10 grains of strychnine, death following about 5 minutes later. A love affair is assigned as the cause for the young man's rash act.

Expires in Dentist's Chair.—Lamoine J. Richards, of Canton, O., expired suddenly, August 12, during the extraction of his teeth, and after an anesthetic had been administered. Restoratives were applied, but Richards died within a few moments after a rally from the effects of the drugs.

Minnesota State Dental Association.—The following officers were elected: Dr. Glen F. Andrews, St. Paul, president; Dr. G. O. Orr, Jordan, vice-president; Dr. Fred S. Yaeger, St. Paul, chairman executive committee; Dr. F. E. Cobb, Minneapolis, secretary; Dr. H. M. Reid, Minneapolis, treasurer.

Dentist Accused of Breaking Patient's Neck.—Geo. Davis, 28 years of age, died August 20, at the county hospital, Chicago, Ill. A diagnosis showed that his neck had been broken. Davis appeared at the hospital Monday night, complaining of an injury to his neck. He said he had had a tooth extracted and that the dentist pulled so hard it hurt his neck.

Dentist Hurt.—Dr. F. H. Riley, a dentist of Kansas City, was struck by a trolley car, August 27. The edge of the fender caught him, swung him around and threw him to the ground, his right arm lying across the track and directly in front of the rear trucks He rolled aside just in time to escape the wheels. He suffered from a badly sprained ankle and bruised hip.

Supreme Chapter of Delta Sigma Delta Elects Officers.—For the coming year, Dr. Charles R. Turner, Philadelphia, was appointed supreme grand master; Dr. Charles E. Meerhoff, Chicago, supreme worthy master; Dr. R. H. D. Swing, Philadelphia, supreme scribe; Dr. J. Q. Bryam, Indianapolis, supreme treasurer, and Dr. R. Ottolengui, New York city, supreme historian.

Finds Old Dentistry.—A German dentist named Galli has established the fact that the Etruscans were accomplished dentists. He has examined numerous Etruscan skulls and found in some teeth which had been filled with wonderful skill. Four are covered with gold capsules, two covering natural teeth, while the other two were artificial grinders, a real piece of bridge-work.

Marriages.—Dr. Geo. E. Kalb, Columbus, O., and Mrs. Rose G. Day, Columbus, August 6. Dr. Earl B. Knight, Monmouth, Ill., and Miss Hazel G. Muckler, of Chicago, at Galesburg, Ill., August 17. Dr. R. C. Matteson, Hot Springs, S. D., and Miss Elma Sheridan, Madison, S. D., August 21. Dr. Charles A. Thomas, Arlington, Mass., and Dr. Theresa Eva Bonney, Somerville, Mass., August 27.

District of Columbia Dental Board.—Fifteen certificates entitling the holders to registration with the health department as legally qualified to practice dentistry in the district were granted during the past year. Eighteen applicants were examined under the law as amended February 5, 1904, as to their qualifications, by the board. Fourteen applicants were certified for registration, and four failed to pass the examination, thereby being disqualified to practice.

Deaths.—Dr. A. W. Hazel, Cleveland, O., aged 45 years. Dr. E. A. Wright, Lawrence, Kan., August 2, of cancer, aged 63 years. Dr. D. U. Day, Los Angeles, Cal., August 3, of apoplexy, aged 74 years. Dr. J. W. Beck, Peckville, Pa., August 15, of blood-poisoning. Dr. Milton Lennox, Minneapolis, Minn., August 23, of heart trouble, aged 50 years. Dr. C. Geo. Lanaux, New Orleans, La., August 27. Dr. F. A. Wolls, Centerville, Md., August 28, aged 56 years.

Iowa Dentist Asks Heavy Damages.—Charles D. Goldsmith and the Sac City Electric company have been made defendants in a suit for damages in the amount of $25,000. The plaintiff, Dr. Charles T. Cress, alleges that on September 17, 1906, he received the entire voltage of the electric system and was so fully charged with electricity that his hand was burned and fully destroyed, his nervous system injured and he was incapacitated for his profession as a dentist. He also stated that the accident occurred because of negligent and careless construction of the electric lighting wires.

Opportunities for American Dentists in Calcutta.—The dental graduates who are searching for labor should be interested in the report of our consul-general at Calcutta. He says that the loss to the English army of good men who would re-enlist, but are rejected on account of bad teeth, has aroused the army officers to a reform in the matter of care of soldiers' teeth. The army council has approved a money allowance for the treatment of teeth by civil dentists. Several soldiers were recently sent to a dentist to have their teeth put in order before examination for re-enlistment, and they were put in form to pass. Thus good men were saved to the army who would otherwise have been rejected. The inducement to our graduates lies in this addendum to the report: "Englishmen prefer American dentists to all others."

Robberies.—Gold valued at $300 was taken from three Houghton, Mass., dentists. Thieves also visited the dentists of Calumet, Mich. Drs. Jones and Sturtz, Marquette, Mich., $100 worth of gold. Dr. A. J. Minx, of Parkersburg, W. Va., $100 in gold. Dr. C. W. Monroe, Parkersburg, $500 in gold. Dr. Roberts, of Parkersburg, $200 in gold. Dr. A. B. Crawford, Martin's Ferry, material valued at $150. Dr. Runge, Houghton, Mich., $200 in gold. Dr. Wittemore, Houghton, Mich., $50 in gold. Twelve dentists of

Erie robbed of $3,000 worth of gold leaf. Drs. Francis J. Quinn, G. H. Tellman and C. H. Tannehill, of Muskegon, Mich., lost material valued at over $200. Dr. John McClure, Wheeling, W. Va., material valued at $35. Dr. W. F. Maury also lost material valued at $35. Dr. Kraatz, Wheeling, W. Va., $100 worth of material. The office of Dr. Harrison was also entered, as were the offices of the Gracey Dental Laboratory; loss, $400. Dr. Cunningham, Princeton, Ind., lost $75 worth of material by theft, August 30.

Recent Patents of Interest to Dentists.—
862588—Dental pliers, Lloyd E. Rowley, Jewell, Kan.
862780—Dentists' cabinet, Wm. H. Woods, Jasper, Mo.
862881—Dental appliance, Calvin S. Case, Chicago, Ill.
861598—Waxless flask, Isidor S. Moscovitz, New York.
863527—Tooth-fastener, Frank Fritz, Alexandria, Minn.
861874—Dentimeter, Reuben H. Macy, West Palmbeach, Fla.
863478—Dental engine, Wallace W. Williamson, Syracuse, N. Y.
861356—Mouth wedge, Robert Buchfeld, Elberfeld, Germany.
862694—Dental separator, Rufus L. Anderson, Plant City, Fla.
863006—Handpiece for dental engines, Jeffrey H. Springle. Montreal, Canada.
861270—Pneumatic dental cement injector, Henry L. Cruttenden, Northfield, Minn.

Copies of above patents may be obtained for 15 cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

REGULAR CONTRIBUTIONS

PORCELAIN JACKET CROWNS.*

By John E. Roach, D. D. S., Chicago, Ill.

The case treated was for a lady, the enamel of whose teeth was badly pitted and defective; see cut No. 1 for condition before, and cut No. 2 for after-treatment.

The method: First, trim the tooth surfaces down, leaving a shoulder slightly under the gum margin, as for Spalding jacket crown. Care should be taken not to trim the shoulder too deeply, as there is a liability to chip off what enamel there is left. Also leave the tooth as long as possible and slightly cone-shaped. This will afford good protection for the pulp.

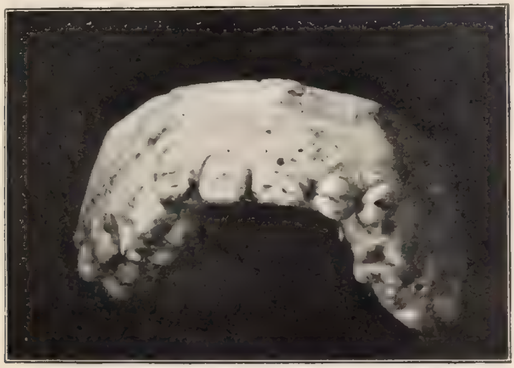

Fig. 1

Next, take an impression in matrix platinum, then select

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*Demonstrated at the Michigan Dental Association meeting, June 5, 1907, with a practical case.

The editor and publishers are not responsible for the views expressed by authors in the reading matter published by THE DENTAL SUMMARY.

a postless crown the proper shade, size, etc., and trim it out to fit over the matrix as near as possible. This can be done with a small coarse carborundum stone and plenty of water; one can be cut out in from 15 to 20 minutes.

Next, mix some porcelain to a creamy consistency and fill the crown half full, and with your matrix in place and thoroughly dried, force it to place; this packs the porcelain, so that when baked there is but a slight amount of shrinkage. The matrix will then come away readily with the crown. Place in furnace and bake to a biscuit; then proceed with filling and baking in the regular way; it may require two or three more bakings to make the crown complete.

Advantages: A much stronger crown than one made from a facing because the porcelain is not so well fused and the facing is liable to separate or be broken off, while in this case we have a crown that has been baked in one piece originally.

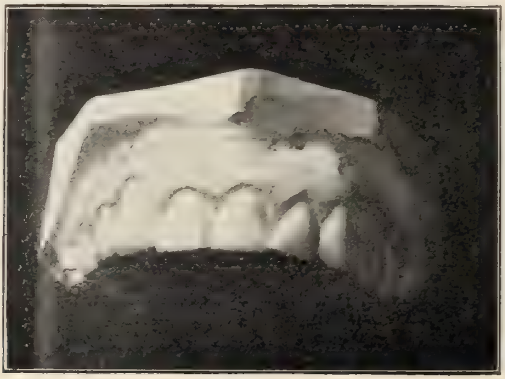

Fig. 2

The cuts show the case as it was exhibited at the clinic; it consists of the six upper incisor and cuspid teeth from cuspid to cuspid, inclusive. They have been on about one year and a half, the pulps were not destroyed in any of the teeth, and the patient reports that they have not caused her the slightest discomfort. The gums have retained their normal color and healthy condition. I think this is largely due to the fact that the shoulder is but slightly under the gum margin and there are no overhanging edges. The gums should be no more likely to recede in this than in a normal case. If the baking is carefully done these crowns should be as strong as the Spalding jacket crown, and are considerably less trouble to make.

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PROPAGANDISM OF DENTAL EDUCATION IN OUR SCHOOLS.*

By Geo. Zederbaum, D. D. S., Charlotte, Mich.

It was my intention to give you a more exhaustive statistical report gathered and compiled by myself; but owing to the change of date of meeting to over a month earlier than usual, I am unable to do so. Before going into the details of my own experience, I intend to show what the dental profession is doing about this subject, and will quote various statistics, and statements of men very prominent in our profession. There should certainly be no question in any of our minds as to the necessity for introducing dental education in our public schools, certainly not if one stops to study the various figures presented here.

In an address to the students of the Royal Dental Hospital of London, Dr. Osler said: "You have just one gospel to preach, and that is the gospel of cleanliness of the mouth, the cleanliness of the teeth, and the cleanliness of the throat. These three things must be your text throughout life. Oral hygiene—the hygiene of the mouth—there is not any one single thing more important to the public in the whole region of hygiene than that, and it is with that that you as practitioners will have to deal." Dr. Brown, of Chicago, says: "If the mouths of children in our public schools could be systematically examined by competent persons and instruction given and enforced with regard to the intelligent use of brushes and antiseptic solutions, the death rate of this country could be materially lessened and the percentage of illness much reduced, and a stronger and a more vigorous race result in consequence of these prophylactic measures." Where do these men get such ideas?

It was found, on examination, that nearly 80 per cent. of the children in Great Britain's industrial schools were suffering from decayed teeth. Dr. George W. Cook reports, after investigation of 220 mouths, that 171 contained the bacillus tuberculosis, thereby showing conclusively that even that dreaded plague may enter the system by way of carious dental organs. And, by the way, are not the avenues of infection of most specific diseases by way of the alimentary canal, and especially so where unhygienic, putrefactive conditions of the mouth exist? In the third annual report of the city of Strasburg, of 2,269 children examined between the ages of 3 and 4, only 362 had good teeth—less than 16 per cent. Of 2,103 between the ages of 6 and 8 only 160, or 7½ per cent., had good teeth, and it goes on to state that this third annual report shows a remarkable improvement in general health of the public school children, less headache, earache and stomach trouble. I wonder what must have been the condition there prior to the introduction of compulsory education in the care of the teeth? A further report from same source states that in one school of 700 pupils—500 between 10 and 18 years of age—50 cleaned their teeth, 275 used a brush sometimes, 175 did not even own one, and of 200 in the primary departments between the ages of 6 and 10 only 10 had a brush. It was this alarming condition of decay that caused the erection of a dental hospital there, for the exclusive use of school children, and every child is subjected to a dental examination on entering school, and twice per year thereafter until the age of 13. In Germany, of 20,000 children between the ages of 6 and 16, 95 per cent. had dental caries in alarming proportion. In Freiburg there is established a municipal school dental clinic, the faculty of which examines the teeth of all the children, whether school children or not. Each child is furnished with a card bearing the history of the condition of his teeth on the date of examination, and on the back of the card are printed instructions for the care of the teeth. The parents of children found to have defective teeth are notified and at the same time are requested to send their children to the dental clinic for treatment at the expense of the city. In England, 75 per cent. of all the children are sufferers from unhygienic condition of mouths. In Frankfort, of 1,020 children (482 boys and 538 girls) examined, there were found 28,673 defective teeth. Boys had 12,326 and only 2,116 sound, and 15,746 of girls' teeth were defective, with only 931 sound ones; 293 girls, or half of the total number, were suffering in the general health in consequence of decayed teeth. These figures go to show that 90 per cent. of all the teeth examined were defective. In Paris both medical and sanitary inspection is obligatory in all schools, and, by virtue of the municipality, the pupils have their teeth examined every six months. In Stockholm, in obedience to king's command, there is systematic examination of mouths of all school children since 1899. While I am far from being an advocate of monarchial powers, I think this a good thing in this particular instance, and it is almost deplorable that our president has not the same authority. The examination of 3,156 school children in New South Wales, in all of 73,708 teeth, showed 16 per cent. of the permanent and 24.47 per cent of the temporary teeth in carious condition. In all, 94 per cent. of these children had decayed teeth. In the British army, during one year, 4,740 men had 7,604 teeth drawn—just think of the sacrifice! Out of 23,000 men refused enlistment from all causes in one year, 5,000 men were rejected for either the loss or on account of decayed teeth. In reply to my question, I have the report of the surgeon-general of the United States army, that in the fiscal year, 1905 to 1906, 18,000 young men were rejected for all causes and 1,000 were refused enlistment on account of bad teeth alone.

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*Read before the Michigan State Dental Association, June, 1907.

An English writer recently pointed out very strikingly the importance of oral hygiene, and his words may be quoted here to an advantage: "I am convinced that a septic condition of the mouth tolerated in ordinary health, becomes a source of great danger of the patient during an acute attack of specific illness, such as typhoid fever, ulcerative endocarditis or pneumonia, and may be an important issue of the case." Another distinguished specialist asserts, says Prof. W. D. Miller, that loss of appetite, nausea and general ill health may be brought about by want of proper attention to the mouth, causing a chronic state of putrefaction, the products of which are absorbed by the mucous membrane with serious results to the general health. The examination of 987 children developed that 99 per cent. of all those suffering from the caries of the teeth were affected with putrefactive condition and swelling of lower glands, of which no physician would be able to make a diagnosis." Again, Dr. Brown, in his address before the American Medical Association, said in part: "The presence of bacteria in such a great variety and number in the mouth at all times must be looked upon as a menace, not only to the teeth in their relation to the dental caries, but through their action as well upon the mucous membrane, rendering it more susceptible to the germs of specific fevers, and upon the digestive tract, for many complaints of the stomach and intestines have been found to be caused by mouth bacteria and their products. Even the lungs are subject to this influence from the mouth. Therefore, its thorough disinfection becomes a matter of first importance." Dr. Burton Lee Thorpe says that the mouth is the breeding place of the bacillus influenza and that oral sepsis is the predisposing cause of influenza and that those with hygienic mouths are practically immune from it.

From the above conclusions it will be readily seen that our progressive minds are uniform in the belief that no person's health can be better than his teeth. It has been well demonstrated that the education of a country must begin first in its schools; and, true to this, we find men are awakening to the fact and are establishing educational institutions, and are lecturing, with a great sacrifice to themselves, in public schools, and, so to speak, are opening the long-shut eyes of the laity to the urgent need of a clean, healthy vestibule to the human system. And so it is that we read that since the experiment in the city of Strasburg, there are more than a dozen cities in Germany that have established like dental clinics for compulsory examination and care of the school children's teeth. The British army council, in view of the enormous loss of teeth in its ranks, commenced supplying the soldiers with artificial dentures, and were obliged to discontinue this experiment owing only to the fact that the soldiers so treated would not live up to their agreement to pay for such services out of their monthly allowance of 25 cents, and when the military authorities made demands for payment, Tommy Atkins decamped, teeth and all. Russia, that supposedly uncivilized and backward country, is beating us in the very line in which we know we ought to be the stronger. Even there they have established dental clinics in various cities for the care of school children's mouths; in St. Petersburg alone, a city of just a trifle over a million inhabitants, a city the size of Philadelphia, there are nine such dental dispensaries. The New York Association for the improvement of condition of the poor, realizing after examination of school children under their jurisdiction that there were 18,000 of them needing dental attention, have established dental infirmaries at an annual expense of $3,000, where these children are taken care of, and not by students, but by first-class dental practitioners. In Cleveland there is established a dental clinic in the city infirmary for the exclusive care of 1,500 children of the poor. In Malden, Mass., in spite of the failure of passage of the bill for compulsory examination and care of the teeth of school children, there is started a strong movement in this direction, and the examination and care of the children's teeth is an assured fact.

We read that a movement is on foot in Chicago to establish a $300,000 school, the express mission of which will be the salvation of the human stomach. "A most excellent move," said one of our professional savants, "for no man can feel better than his stomach." But the greatest factor in abusing this vastly important organ is the utter neglect of keeping the teeth in proper condition, and the success of this institution will depend largely upon the stress placed on oral hygiene and the preservation of the individual's teeth. We read further that in the Chicago hospital a special clinic department is to be added, in which a regularly established system of mothers' clinics for the free instruction of parents in the care of children will be held. It is hoped that mothers will be given, along with the rest, a thorough instruction relative to the children's teeth, and then no mother can say she did not know this or that about her child's dentition. The enthusiastic and scholarly Dr. Raylor, of Cambridge, has offered to defray the cost up to $2,500 for a year's attention to the teeth of children attending the schools of his town. A very commendable offer, and I wish there were more such benefactors.

Now, then, we come to the question: Do members of the medical profession who are constituents of the various boards of health do their duty by themselves and to the public if they do not insist upon systematic care of children's teeth? Most emphatically, no!! Take our own state board of health, for instance: this board publishes, "for the general dissemination of sanitary knowledge," quarterly pamphlets dealing with prevention of certain specific, epidemic diseases. One pamphlet is on diphtheria and its restriction and prevention; one on tuberculosis; one on typhoid fever and its restriction and prevention, etc., and one just of recent issue deals totally with the sanitary teaching in our public schools. A most commendable work, indeed; but let us stop a minute—out of 60 printed pages we find but a few lines that at all mention the care of the teeth, while we find a whole paragraph on the care of eyes and ears! And is it not a proven fact that most earaches are in reality toothaches? I give full credit to Prof. Ferris, who, though not a medical man, recognizes the necessity of cleansing the teeth, and in his article in the aforementioned pamphlet urges regular visits to the dentists. I say, it is within the jurisdiction of the board of health to insist on dental care and dental education in our schools, and then, and only then, can we expect the fathers and the mothers to come to know whether their child has his second tooth. In most of our schools physiology and hygiene are taught, to some extent, and we will agree that the dental hygiene should find its way into the school curriculum as well. Just imagine, gentlemen, of the immense progress we would make if the 18,000,000 children in our schools today would receive the benefit of such instruction.

Only recently, in Ann Arbor, a Miss Ellis of Grand Rapids was highly praised for the eloquent appeal before the Michigan Schoolmasters' Club for a better parental and scholastic training of the young in the rules of health and hygiene. This lady declared that personal hygiene was sadly neglected, and attributed much of disease and the accompanying evils to the ignorance of its laws. She insisted on practical teaching of all matters pertaining to elevating the bodily health, and went even so far as to recommend elementary lectures in bacteriology, with particular study of tuberculosis and its prevention and cure. I am sorry that one thing was left out of her lecture: the unclean, diseased condition of the mouths. Only a few weeks since, at the tuberculosis convention at Washington, the celebrated Dr. Dunn, of Boston, stated that the terrible white plague increases from month to month and year to year, and that, in early life, tuberculosis does not affect the lungs as it does in the case of adults, but frequently remains hidden in the internal glands in children, until an acute form of tubercular meningitis or pneumonia causes death. "Children," he declared, "have no power of resistance against acute outbreaks," and he said, also, that this disease entered the body through the lungs, through the intestines, or through the tonsils and larynx, and located itself in the glands. As the mouth is the very entrance to all these passages, is it not important to teach oral hygiene, thereby guarding the gates of admission and lessen the tendency or susceptibility and reduce the predisposing cause to infection?

The problem of educating the school children to the necessity of oral hygiene and the care of the teeth is a hard one, to be sure. I do not stand alone in my opinion that our medium is through the school, and while attempts have been made by progressive dental practitioners in Missouri, Mississippi and Massachusetts to pass laws making it compulsory to teach these subjects in the schools, these attempts, perhaps from the lack of enthusiasm, insufficient support or indifferent perseverance, or perhaps from the lack of the whole three, have proved unsuccessful.

Before proceeding with this educational propaganda, I outlined my course and have altered it only to suit the convenience and conditions. Here is what I have done: I examined in all 500 mouths of school children between the ages of 6 and 16, and found out of that number 450 in need of dental attention. All of the various dental branches, with the exception, perhaps, of the prosthetic branch as applied to platemaking, were found to be called for. Here were numerous cases for treatments, for fillings, and many for the extracting specialists, and oh my! what a field for the orthodontist! In aggregate there were 2,700 teeth that needed attention, thus bringing the average of six teeth to each mouth. Let us see for a minute, what time it would take to place the mouths of school children in good condition in just one county. It is estimated that Eaton county has today some 3,000 pupils; at the given average, there would be in the neighborhood of 2,700 children in schools needing dental work. Now, at six teeth per capita, there would be 16,200 teeth to take care of. I wonder if any of you have an idea what this enormous number means? Polk's dental register gives the number of dental practitioners in my county as 12. Let us suppose that 10 of these practitioners are willing to give their time to the care of these teeth, working and completing five teeth each per day · at this rate of 50 teeth completed each day, it would take these

10 practitioners, working daily, a whole year to place these children's teeth in good condition! And gentlemen, this is not all: in the county mentioned there are some 576 square miles, and there are 136 widely distributed schools to visit, and the roads are not of the best, and the weather is lots of times severe, so considerable time is lost on these accounts. You see the undertaking is of a large magnitude, and would require co-operation on the part of our profession and the teachers. It is with these ideas in mind that I wrote Dr. Hoff about a year ago, and received from him a letter of recommendation to our board of education, and it was but a little while when a committee called on me asking me to deliver a lecture before the State Teachers' Institute. Accordingly, I appeared on the program and quote from a clipping merely to show that the sentiment is with us and people and the press are willing to assist us. It said: "Dr. Zederbaum gave a half-hour lecture before the teachers' institute. It was full of interest and was much appreciated by all present. His topic was "Oral Hygiene and Prophylaxis," and his argument in favor of a thorough teaching of youngsters as to the care of teeth was sound. He predicts compulsory training in the schools in this country within a few years. He gave histological as well as physiological structure and function of the teeth, explained cause and prevention of decay, and ended by asking the co-operation of all the teachers in promulgating about the cleanliness about the mouth. He expects to deliver lectures in various schools during the coming season, and we are sure his work along this line should be encouraged."

By this first lecture, you will readily see, I have gained a sort of perfunctory acquaintance with many of the teachers, and while they in themselves are far from being efficient in oral hygiene, their enlistment in our ranks will prove for the best. I heartily agree with Dr. Byington (Dental Review, Nov. '06), that a plan should be adopted whereby the governor of each state should select well-qualified dentists to lecture at least once each school term, impressing the pupils with the importance of dental hygiene. I would further suggest that these lecturers appear before the various school teachers' conventions, institutes and clubs and enlighten them as well, and further, to ask their co-operation, and to insist upon their pupils, by example as well as precept, if only for the sake of beauty, to keep their teeth and mouths clean.

My lectures before the children were in as plain a language as I could put it and still give comprehension. I used Dr. Hyatt's little booklet entitled "The Teeth and Their Care," as a guide, and with its help outlined the subjects which I wished to present to them. They were. physical and chemical structure of the teeth; eruption of the temporary and then the permanent teeth; explained the prevalent cause of irregularities of the teeth, showed the cause of decay and its influence upon the general health, on breath and beauty; mouth-breathing and thumb-sucking; explained in a simple manner on the blackboard what makes the tooth ache, and what is generally meant by the so-called "gum-boil," and explained the manner of some of the simpler operations for cleaning the teeth for the purpose of educating the majority, that had never been in a dental office, and had never even owned a toothbrush. I also showed the manner in which the teeth should be brushed, and how the irrigation of the mouth and gargling of throat should be accomplished. The lecturing over, my young friends were not so timid when I called them by name and examined each mouth and noted all diseases and irregularities; the result of the examination of each tooth was marked out on a chart. Here is a copy of the blank form I prepared:

Name of Pupil..................Age (nearest birthday).......
Name of Teacher....................District.................
Name of Father (if not living, give mother's)...................
General condition of health of Pupil—Good.....Fair.....Bad....
Has the Pupil ever had any dental work done (extracting excepted)?
Yes or No...
Does the Pupil own a toothbrush?—Yes or No......Does the Pupil use it?—Yes or No.................................
Date of examination..........Were Parents or Guardians present?
....

Chart of the Teeth.

7 6 5 4 3 2 1   1 2 3 4 5 6 7
G F E D C B A   A B C D E F G

Remarks ....
Scaling and cleaning...............Regulating..............
....

I might add here that when I was ready for my work I wrote the teacher of a certain school and explained my motive, and asked her or him, as the case might be, to interview the board of trustees and see whether such a lecture and examination of the mouths as I proposed would be agreeable. I am glad to state that the trustees of only one school out of 11 thus addressed refused permission, thinking perhaps this was another one of the many schemes for personal gain. When permission had been granted, I sent the teacher as many blanks as there were pupils under her charge, and asked her to fill out all above the double line and have the whole ready for me on the appointed day. Of course it takes a lot of time to examine even 25 mouths, so to economize time, my wife accompanied me on these tours of inspection and marked the charts as I went along, in each individual mouth. True, some of the bashful ones among these youngsters would occasionally object to being examined; but some of them changed their minds, however, when I gave out samples of toothpowder and mouthwashes furnished me by the manufacturers. Others still persisted, only to tell me secretly that their mouths were in such horrible state that they would not have any one look into them. Really, gentlemen, if there be less talk about keeping the school-room more ventilated and more attention be paid to the cleanliness of the mouths, the air in these rooms would not become vitiated so speedily as to require constant opening and shutting of windows. True, God's air is pure and cheap, and we want lots of it, but I doubt whether it gets into the lungs as pure as it was intended it should, when it has to pass such foul mouths as I had the occasion to examine. The scheme of having the teacher fill out the blanks worked admirably and saved a lot of time. All the questions asked on blank forms were, in my mind, necessary for the future reference. I hope sometime to cover the same ground again and see for myself what difference was made in the condition of these mouths.

Now, gentlemen, I trust I have proven to you the necessity of propagandism of dental education in our public schools, and the plan similar to that on which I have worked would, I think, prove satisfactory. Now, then, comes the question, how shall we do it, how shall we carry this propaganda into effect? This morning there came to me a pamphlet, from a certain commercial dental toilet manufacturing concern, of an educational association, and, gentlemen, there are many points in that advertisement that appealed to me as rational, and such as, together with a few other suggestions, will certainly accomplish the desired end. So, now that our eyes are opened to the situation, let us not ponder over it, but take this matter up as a body, and act in harmony and in unison to accomplish the greatest good for humanity that our profession is capable of doing.

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DISCUSSION.

Dr. R. W. Bunting, Ann Arbor: Dr. Zederbaum informed us that he had not had time to look up the necessary statistics. I wonder what he would have given us if he had been given more time. It is a subject I am very much interested in myself, because I had a little dabble in it.

I wish very much he had let me know what line his paper was to have followed, because I think I could have brought some statistics to show the result of my work. I have had the opportunity of examining 1,500 children's mouths with Dr. Dean in the public schools of Ann Arbor, and out of that number of mouths we have compiled records and charts which have been made up more especially for statistical advantage. They are not completed as yet, and I am working diligently on them to get some reliable data. We have so far been unable to get anything more than the bare results completed. There are two or three things coming out very strongly to me, unless I am mistaken. In our examination we divide the children into three classes: good, fair and poor. We cannot be sure how many times a child cleans his teeth. I asked one boy if he had cleaned his teeth; he said, "No, not that week." I told him I thought he had better do it sometime during the week. Sometimes they say they do when they don't do it. I find, of all the school children I examined at Ann Arbor, that the percentage of decayed teeth is very low, only 6 per cent. I was surprised to see how well most of the children kept their teeth, and how well they seemed to understand the care of them. In the mouth of one child a tooth was out of shape, and I said to her something should be done for that, and she said her mother had taken her to the dentist about that and he is going to take care of it. I believe in this education of the young people to properly take care of their teeth. In the public schools in Ann Arbor the children are taught something about hygiene generally, and about the teeth. When I saw how ready the teachers were to take this instruction up, how ready they were to have those children told about the conditions, it seemed a pity that somebody wasn't ready to go and tell them. I think the teachers would heartily cooperate with us.

Dr. Shattuck: I am surprised at these figures shown by Dr. Zederbaum. In Detroit, out of 300 that I examined in April of this year, there were 98 needed dental operations. I think the percentage is much lower than the essayist has placed on the blackboard.

Dr. Loeffler: All the year I have been very much interested in the work of Dr. Bunting. I am also greatly pleased that we have such men as Dr. Zederbaum, who give up their time for finding out these things for us. I wish more of us would do this kind of work. I think, too, many of us are after the almighty dollar, and leave it to a few to solve such problems. Naturally, we dentists want to know what there is in it in these things. We must start with the children and educate them along these lines; they might be compelled at least once a day to clean their teeth. The teeth once put in the right condition, a proper habit formed, they are apt to be kept. So this is a work that I think our lady dentists ought to take up; but it should appeal to men as well.

TREATMENT OF PYORRHEA.*

By Grace Pearl Rogers, D. D. S., Detroit, Mich.

The subjects demanding the dentist's attention today are numerous and varied, but among them all there is not one of more vital importance than the treatment of pyorrhea. The object of our calling is to save the human teeth, and this purpose we cannot attain by the most perfect and artistic repairing of the crowns, without preserving the foundation upon which the crowns rest; for a perfect tooth is of no value to a patient if its attachment has been destroyed by disease.

By common usage the name Pyorrhea Alveolaris has come to designate a variety of conditions; however, the term is at fault, like many others of our profession. It might not be an unwise plan to have a committee appointed to revise the nomenclature of our profession. If this were done much of the time which is consumed in discussing the applicability of certain terms would be put to better use. The energy spent at dental meetings in the last 25 years discussing the use and abuse of the name pyorrhea, in suggesting substitutes for the same, and in arguing for a local or constitutional cause, would have been sufficient to cure many cases of the disease. So, for the sake of simplification, let it be understood that when in this article the term pyorrhea is used, I mean any condition which has resulted in the destruction of peridental membrane.

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*Read before the Michigan State Dental Association, June, 1907.

If any portion of the membrane is destroyed, a pocket is formed, which, whether it contains pus or not, is of serious importance.

Beginning about the middle of the nineteenth century, with the work done by Dr. John M. Riggs, we find that there have always been, and still are, some few in the profession who have not only claimed to cure, but have cured many cases of pyorrhea. Why has the cure not been universal, and why do so many dentists say the disease is incurable, and give their patients no hope when they present themselves with diseased tissues and loose teeth? In spite of the fact that articles almost innumerable have been written upon this subject, and discussed pro and con, teeth are being lost from this malady in deplorably large numbers every day.

With a few notable exceptions, the members of our profession have been talking and not acting. The majority have not been able to recognize the disease in its incipient stage, consequently the trouble has progressed unmolested until some day a very loose tooth distresses a patient, and it is extracted by his dentist, who shakes his head and gives the patient the following consolation:

"You have pyorrhea alveolaris, and will have to lose all your teeth. It is caused by uric acid in the system, and there is no cure for it. You will be wearing plates before you are fifty years old." Perhaps another dentist would have advised treatment, this consisting in a careless scaling of the teeth with inefficient instruments and syringing out the pockets with an antiseptic. Such treatment is better than none, but it will not cure the trouble. Some more progressive man would have treated the case in a more careful way until the mouth was put in a healthy condition. He would not have extracted the loose tooth until he had proven to his own satisfaction and to that of his patient that to save it was impossible. Some teeth which seem hopelessly loose often respond in a surprising manner to the proper treatment. Therefore, it is always best to at least try to save most teeth before using the last resort—extraction.

The moral effect this has upon the patient is most important, even though he should eventually lose the tooth. The dentist himself puts the estimate of value upon his patient's teeth, and if the extraction of a tooth means nothing to him, it will mean no more to the patient. If, on the other hand, he puts forth every effort to save a tooth, even though diseased, and teaches his patient the importance of preserving the natural teeth, the latter will appreciate it and take better care of his remaining teeth. Ten years from now I believe that the dentist who extracts a tooth because it is affected with pyorrhea without first using every possible means of saving it, will be placed in the same class with the man who extracts a tooth because it is abscessed, without attempting to treat the abscess. There is no short road to success in the treatment of pyorrhea, such as the alkalithia people and compounders of various mouth-washes would have us believe. We cannot sit in the shade with Bill Nye and Dr. C. M. Wright any longer, but must get out in the sun and work.

While the profession is divided on the subject of the cause of the disease under consideration, nothing can be accomplished by more argument. There are a few things which we know will cause pyorrhea under proper conditions, and insofar as we know, we should act. It is for the men connected with our colleges, who have the time to prove scientifically and practically what influence constitutional disturbances have upon this trouble, and vice versa. We can add to their effort the result of our observations, but no man in general practice handles enough cases to make any decided statements either way. It means years of research work added to what has already been done before we can reach positive conclusions.

I believe that every dentist who has been successful in the local treatment of pyorrhea has found that that treatment alone was sufficient. Dr. Riggs, who with the crude instruments he must have had to work with, cured 90 per cent. of all the cases coming under his care. Dr. D. D. Smith cures even a larger percent. The works of these men stand out as beacon lights in the history of dentistry to encourage us in our attempts to treat pyorrhea. The cures made were complete, and their treatment entirely local. It is the belief of many dentists who are successful in the treatment of this malady that if the gum tissue be kept absolutely free from local irritation, no condition of the system can bring about pyorrhea. This has been proven by the oral prophylaxis treatment as practiced by Dr. Smith and others. Those of us, then, who cannot cure pyorrhea can at least prevent it, and that then is our duty. However, until we are converted to the need of preventing the disease of the soft tissues of the mouth, or at least checking pyorrhea. in its incipiency, we will have to treat this disease in its advanced stages, which is one of the most difficult operations a dentist has to perform.

While this disease may not be fully understood, yet a classification of the knowledge we have upon it may be of value. The causes of diseases are divided into:

(a) Indirect or Predisposing.
(b) Direct or Exciting.

PYORRHEA.

1. Predisposing Causes.—(A) Malocclusion.
    - (a) Misuse.
    - (b) Nonuse.
    - (c) Overuse.
    - (d) Making the prevention of accumulations difficult.
    - (e) Lack of development of tissues surrounding roots.

(B) Tooth Extraction:
- (a) Making the prevention of accumulations difficult.
- (b) Malocclusion.

(C) Low Vitality:
- (a) Lessens resistance of soft tissues to irritants of any kind.

(D) Caries.—Direct Causes:
- (a) Mechanical—Bands, Crowns, Fillings, Plates, Tartar, Clamps, Ligatures.
- (b) Chemical—Soft deposits, Slippery Coating.
- (c) Infectious—Bacteria.

I do not wish to leave the impression that this covers the etiology of pyorrhea, but rather to place before you conditions which are known to produce this disease, and to emphasize the importance of using the knowledge that we have. Let us suppose that we are not able to cure every case that comes to us, is it not worth our while to at least cure those we can?

After reading the literature on this subject, and obtaining much information from the various schools in our country, I came to the conclusion that so far as the treatment of pyorrhea was concerned, "there is nothing new under the sun." I therefore shall not attempt to give you anything new, but merely to give the method of treatment in detail, and to lay emphasis upon certain parts of it which have, I believe, been considered unimportant by the men who have not been successful in the work. The general impression has been that the secret of success lay in a certain set of instruments, or in an especial medicament, while in fact the results of the work depend upon the thoroughness with which it is done. Every source of irritation must be removed, and if you can accomplish this with three or four instruments, each one taken from a different set, the cure will be as complete as the one accomplished by another dentist who used the 27 instruments comprising the Younger set. The therapeutic remedy applied is merely an aid to nature in repair of tissue, and even the most efficient will accomplish little unless all irritants have been removed.

I shall divide the subject into: The Curative and Preventative phases.

In the treatment of a disease, if a physician does not know the cause, he treats the symptoms as they arise. If you can locate the direct cause of the disturbance around a root, then remove it; if not, then you are left to treat the symptoms. You have an inflammation (with or without pus present) to relieve. If pus germs are present they must be destroyed, all source of irritation must be removed, and as nearly as possible the parts must be kept clean and at rest. If the teeth to be operated on are very loose and it is possible to ligature them, do so; for if the teeth are held firm it will facilitate your work and will make the operation more comfortable for your patient. Permanent splints should be supplied when necessary.

Surgery of the most intricate kind is involved in the Curative phase of the treatment, and it is necessary at first to have our field of operation as nearly aseptic as is possible. There is no antiseptic of which we have knowledge which will accomplish much in a mouth where the teeth are partially covered with bacterial plaques and soft deposits, as is usually the condition in a pyorrhetic mouth. Consequently we must obey the first rule of antiseptic surgery, to first remove all that we can mechanically. In regard to the teeth, this would mean the careful removal of all soft deposits, tartar, stains and bacterial plaques from the exposed tooth surfaces. This should be thoroughly done, in a way which will best accomplish the required results. If this work is then followed by the sprays recommended by Dr. Ferris, and introduced to us by Dr. White, we would have an area in which to operate that would be very nearly aseptic. This preparatory work will require some little time, and you may not be able to do more than this at the first sitting. There are several advantages, too, in not trying to do more.

1st. A patient usually dreads the treatments, and if you cause him no discomfort the first time, his fear will be lessened.

2nd. The gum tissue will respond to the removal of external irritation, and be less sensitive at subsequent treatments.

3rd. You will have a much more agreeable atmosphere in which to work, for there will be no odors emanating from soft accumulations.

4th. You will have less hemorrhage, and a bloody operation is never desirable either for you or your patient.

Of course, if your patient is suffering, relief from pain is the first requisite; if not, then you may use your own judgment in manner of treatment.

You should not overtax your patient's strength, because much benefit may be lost; for any diseased organ needs back of it a healthy constitution to aid in its recovery, and anything which tends to undermine the health, such as a nervous strain, tends to retard repair.

You should impress upon your patient's mind most emphatically the absolute necessity of systematic and thorough personal care of the mouth and teeth. The importance of this cannot be overestimated, and neither you nor your patient can afford to overlook it. Without your patient's co-operation, you cannot produce a healthy mouth. It is impossible; for it requires but a few days of neglect in order that many substances may accumulate on and around the teeth, which are irritating to the soft tissues of the mouth. If there is a source of constant irritation, how can a diseased organ be improved? In this connection, the question of toothbrushes, toothpicks and dental floss comes up for consideration. No matter what interest a patient may have in his own case, he cannot accomplish much unless he has the proper instruments with which to operate. There are brushes made which are adapted to almost every condition we may chance to meet. Teeth standing alone, bridge-work, long and short-crowned teeth, regulating appliances, all these demand different brushes in order to procure the best results. If but one brush is used, and that three or four times a day, the bristles become soft and discolored, which of course is objectionable, and the necessity of more than one brush of its kind, very evident. The use of toothpicks should be discouraged, excepting in rare cases. It is a vulgar habit when indulged in anywhere, except in the privacy of one's own room. Its object is the removal of food particles, while in fact only the large ones can be removed by its use. The numerous small ones are only pushed further in between the teeth. These latter can be removed by using dental floss, which is an indispensable article in the personal care of the oral cavity. I would rather that a patient of mine use dental floss intelligently once each day (and that just before retiring at night), than a toothpick after every meal. The floss is not only useful in removing food particles from between the teeth, but if properly manipulated will help to break up the bacterial plaques, which otherwise remain undisturbed on the approximal tooth surfaces. When you have gum recession, and the contact points are not too close, the unwaxed ribbon floss (fine) is most effective, while the waxed (standard flat) is satisfactory in ordinary cases.

See to it that your patient has the proper quality and quantity of materials with which to work, and that he understands how to use them. He might brush his teeth five times each day unintelligently and not accomplish as much as some other person who used his toothbrush only once each day, but then in an intelligent way.

Before the patient is dismissed from the first sitting he should be given detailed instructions in the care of his mouth and teeth. Do no take for granted that he understands anything about it, but give him a very thorough lesson. Oftentimes I believe we make the mistake of neglecting to explain some very simple thing, thinking it unnecessary, when in this work it is the little things which are most important.

There are but few patients, and I may add a very small number of dentists, who know how to care for their mouths. An intelligent person knows that he ought to keep his teeth clean, and he may do so to the best of his knowledge, but that part of his education has usually been neglected. It is our duty to study each case, point out the surfaces which are neglected, and give the necessary instruction. This is compulsory in the treatment of pyorrhea, for if you neglect this important part of your treatment, the results of your work will be unsatisfactory. Where there has been much destruction or recession of tissue the teeth are especially hard to care for, since there is so much tooth surface exposed. Almost every mouth will offer some problem for solution in the matter of personal care, and these problems must be solved by the dentist. To some of you this question may seem of minor importance, but speaking from my own observation, I believe that a very large number of failures in the treatment of pyorrhea are due to neglecting this apparently minor point.

You should be familiar with the constituents of any powder or mouth-wash you recommend, for they are used so frequently that much harm may follow if any injurious ingredient is contained. An astringent mouth-wash is very helpful while treating pyorrhea.

About 48 hours should elapse before a second sitting is given, and then you must use your own judgment as to the location and number of teeth to be operated on. If the patient has been faithful and intelligent in his care, you will not be able to see any deposits on or about his teeth ; therefore an efficient spray is all that is necessary in order to prepare for the operation. The difficult part of your work is now to begin, viz., the scaling of the roots guided only by the sense of touch. As you all know, the tactile sense is located in the fingers, and while a delicate sense of touch is natural to some, yet any one by experience and practice can develop what faculty he may have in that direction. One should be able to recognize live bone, dead bone, tooth and deposit solely by the sense of touch. Without this skill your work necessarily cannot be thorough, no matter how conscientious you may be.

This skill cannot be obtained outside the mouth, hence the need of education in this field of work while in college. No student should be allowed to graduate who has not thoroughly scaled a sufficient number of teeth to make him reasonably skillful, at least so that he may be able to meet with some degree of success when in practice.

There are many scalers on the market, and no doubt each one has its place of usefulness. However, no matter how many scalers you may possess, there are always favorites which prove themselves most valuable to you. To some men certain instruments are indispensable, while to others these same instruments are of little value. It is best, however, to have a large number from which to choose. Large, clumsy scalers are objectionable for two reasons: gum tissue is unnecessarily lacerated, and with them you can only recognize the large deposits. The smaller points are much more preferable and useful. The Smith and Ferris-Tompkins files are indispensable, for with them one can detect the most minute granules. Excepting in rare instances, it is not necessary to use a local anesthetic. I have not yet found it necessary in any case. When the gums are anesthetized, the operator is unconsciously less careful, gum tissue is lacerated unnecessarily, and there is as a result just that much more tissue for nature to repair. I believe, too, that an anesthetic interferes with the healing process. If, in working in a pocket, one confines himself to the area bounded by the walls of the pocket, he will not cause the patient pain.

Every trace of necrosed bone must be removed, as well as all deposits of any form or kind. Carefully rinse in an antiseptic, and wipe instruments whenever you remove them from the mouth. If you are not careful to do this you are apt to either carry back into the pocket material you have removed, or you may infect another pocket with this material. Be sure to remove everything from the pockets which you have from the tooth or process. Carefully syringe out pockets with warm phenol sodique and then medicate with an efficient antiseptic. The four antiseptics most universally used are: 25 per cent. trichlor acetic acid, lactic acid, full strength, aromatic sulphuric acid 25 per cent., zinc chloride 50 per cent. Any one of these will prove satisfactory if your work has been thorough. An orangewood applicator is best for applying the medication, as you can carry sufficient to place with the point and carefully rub the surface of the root upon which it is needed. In this way there is no danger of overdoing the medication. Then carefully dry the opening and surface of the tooth so that you can seal the pocket with steresol, or something similar. Steresol is a preparation recommended by Dr. M. L. Rhein, of New York.

If the pockets are sealed, nature will have an opportunity to do some repairing, and for a time will not be interrupted by food particles, bacteria or saliva laden with toxic materials. If, after this treatment, the pocket does not heal, it is because there is still some cause for irritation, due to deposits which have not been removed, necrosed bone or bacteria. Sometimes it is necessary to pack the pockets in order to assist the healing process, especially when considerable gum tissue or process has been destroyed. A very good and effective material for this purpose is iodoform cordine. The especial virtue of this is that it is already prepared to use, more easily manipulated and is much more nearly aseptic than would be a piece of cotton prepared on a broach by you at the chair. If a pocket needs to be packed it should be irrigated and repacked every day, allowing it to heal from the bottom toward the opening. If pus be present, do not begin to scale the roots until you have syringed out the pocket several times with some antiseptic, but never with pyrozone, for there is danger of its carrying the pus germs further into the surrounding tissues when it effervesces.

During treatment the importance of artificial stimulation to the tissues cannot be too strongly emphasized. In most cases of pyorrhea we have a condition of malocclusion, in which case often there are some teeth which receive no use at all, consequently we have a stagnant circulation in the pulp and soft tissues. This can only be improved by artificial means, and the most effective method is by gum massage, vigorous brushing and by frequent hand-polishing; the latter not only stimulates, but removes all source of irritation, so that the tissues have nothing to do but to recover.

The prophylaxis treatment should be given as frequently as the severity of the case demands until cured. In order to maintain a healthy state, the mouth and teeth must be kept free from accumulations which, if allowed to remain, will so irritate the tissues that a return of former conditions will be inevitable. But if given a healthy mouth, it is a very easy matter to maintain such a condition, providing you will do your work faithfully.

How unfortunate it is that we must meet with such an awful mouth affection, especially in the practices of ethical dentists, but since we do we must treat it as we find it. However, we should plan for the future, and prevent in the coming generation such conditions as we see today. The orthodontists are doing much to help us in that direction, and with the combined efforts of all, we should leave no cases of pyorrhea for our successors to treat. We must educate ourselves so that we can recognize the early stages of the disease.

If we can do this, it will mean but little treatment in order to place the mouth in a healthy condition, and by keeping away all local irritants those tissues can be kept in a state of health. How much better is prevention than cure! The old adage, "A stitch in time saves nine," is very appropriate.

It is very frequently some dentist's fault that a patient has pyorrhea in its advanced stage, for usually we find that the patients who come for treatment late have been regular patients of some one for years, and that some one has either treated them inefficiently or has discouraged them completely with regard to the saving of their teeth.

It is not a difficult task to cure pyorrhea in its incipiency, and a healthy mouth is quite easily maintained such with your patient's co-operation. Pyorrhea can and should be prevented; it is your duty and it is mine. In 1880, Dr. George Mills, of Baltimore, made a prophecy which is, I believe, being realized today and which will be even more applicable to the future. He says, in speaking of pyorrhea, "The time will come, and it is coming very fast, when men will take an interest in it and be anxious not only to take care of the cases, but they will come to observe that the results are so terrible in the mouth and upon the health of the tissues generally, that they will anticipate cases, knowing that prevention is better than cure. This time will come soon or late, just as stimulus is brought to bear upon our profession." Let us see that stimulus is brought to the profession in heroic doses. Those who are interested, do all you can. Pyorrhea can be cured, and kept cured, and what is even of more importance, it can be prevented. Let us not only give relief to the suffering humanity, but let us hasten the time when suffering from pyorrhea will not be known.

DISCUSSION.

Dr. N. S. Hoff: Mr. President, I should prefer very much that the ladies should conduct this discussion, since there are a number here who are specializing in this subject. I don't think I ever heard a better paper on this subject; in fact, I don't believe I ever heard so good a one. I find myself in such perfect harmony with everything that Dr. Rogers has said that I cannot offer any criticism; however, I don't think that it is always necessary for us to criticise what other people are doing, unless we felt that they are in error. I don't seem to find any error in this paper. I am so well acquainted with the work of Dr. Rogers and know how well she does it that I feel diffident about discussing it. If I discuss it at all it will not be to criticise, but to emphasize some of the points she has brought out.

Why is it that so many dentists say pyorrhea cannot be cured, and speak of it as an incurable disease? I have noticed this tendency for some time, and after studying the matter, I think I can throw a little light on the attitude of most practitioners toward this disease. The most obvious reason why we are saying pyorrhea cannot be cured is that we do not know how to treat it. This reason would be equivocal if it applied to the whole profession. Most practitioners take pride in doing their work well and think they have used all the intelligence and skill they possess in their efforts to cure this disease; but it seems to me they fail to grasp the fundamental idea. Pyorrhea is not curable, it seems to me, by many because many dentists are trying to cure desperate and impossible cases. We cannot hope to restore to a normal condition the root of a tooth that has absolutely no bony support; it is useless to attempt it. When I meet cases of that kind, unless it is the only tooth seriously affected and there is a chance to support it by splinting to adjoining teeth, I extract the teeth. There is little to be gained by subjecting a patient to a painful treatment if you know you cannot cure. I do not mean to say that I make it a positive rule to extract every tooth that seems hopelessly diseased. In many cases we find the teeth that are loose can be restored to good function by giving them an artificial support of some kind. In time such loose teeth as that will become set in the soft tissues and a certain amount of new bone tissue will form about them. These are not what I should call desperate cases. Desperate cases are such as preclude instrumentation or where it is almost impossible to scale the teeth and put them in anywhere near a normal condition, so far as cleanliness is concerned. If we can't get the teeth absolutely clean we shall get no cures. The sooner we learn to discriminate in these cases the sooner we can say that pyorrhea is curable. This is one point I wanted to emphasize.

The essayist brought out the point that thorough scaling is a fundamental principle. I don't think we can emphasize that any too strongly.

It is the surgical treatment that demands our best attention. The surgeon who leaves any infection or diseased tissue in a wound has not made a thorough operation. The best surgeons of today, for instance, in making operations involving any part of the body where the lymphatics are involved, anticipate the spread of disease and remove the lymphatics even in the healthy tissues, so as to take away all chance of the wound becoming reinfected. Now, I would not advocate that you go beyond the cause of the infection in treating pyorrhea and take away healthy tissues. But it is necessary for us to go to the full extent of the infection. In most of our operations we do not destroy all of the tissues that are hopelessly involved. As Dr. Rogers says, we do not have proper instruments; we do not have the training that we should have to enable us to know when we reach the limits of the infected areas. Some of the most successful men, in treating this disease, make this their fundamental principle; such men, for instance, as Dr. Younger, of Paris, and Dr. Good, of Chicago. The basis of their operations is a thorough removal of all the infected tissue. They succeed in getting admirable results, simply because they are acting upon this well-known modern surgical principle. It is for us to follow if we expect to succeed.

My own method of performing these operations is not exactly the same that Dr. Younger and Dr. Good follow, but is based on the same surgical principle of radical cleanliness. I have not felt that it was necessary to go to the extremes to which Dr. Good and Dr. Younger do in operating, because I find that the least mutilation of the gums I do, the quicker the healing and the more effective the operation; I do not wish to destroy any more of the gum than is absolutely required in order to reach the seat of infection. I especially value the gingival margins. I have bought every instrument on the market that I have seen that would enable me to perform the operation of scaling with as little injury as possible to the gums. My plan is to reach all of the deposit that is practicable through the natural openings into the sockets, but never going to the extent of tearing open the gum tissue at this point. I would rather open artificially into the gum at a point where it is not likely to be re-opened by disease, to the side of the root by a crucial incision, a position where it is more likely to withstand the influences which would cause the tissue to break down. This method will often facilitate the removal of deposits because it gives more direct access to the parts involved and leaves no detrimental scar. In whatever way we do this work, and each man will have his own method, the point is to do it thoroughly. If we can accomplish this part of the work thoroughly, and get the teeth in cleanly condition, and give them rigid support, there is no question in my mind at all but what this is an absolutely curable disease in a large majority of cases; it is, in fact, curable to such a large extent I think we can almost say it is absolutely curable in all cases. A case that is not curable would be where we are not able to treat it properly surgically, or the patient will not do his part of the work in keeping the mouth clean.

The question is always brought up as to the medicinal treatment and is one of importance; many cases are so treated today exclusively. I have had a great deal of experience, as all of you have had, with medical treatment; but since I have taken up with this method of treatment I have almost entirely abandoned medicinal remedies, except as detergent disinfectants. If you can more thoroughly remove the deposit by solvent drugs or the necrotic bone wherever that is extensively diseased, all well and good; but drugs should not be used continuously nor should they be reapplied daily or oftener, as a great many think they should be, for you will destroy the healing tissues. The surgeon does not do this in his work. When he makes a wound he does not fill it full of irritating remedies to destroy the bacteria, but uses mild antiseptic washes. He simply washes and cleanses the parts and keeps them so. He wants them clean, but he is careful not to disturb the new granular tissues that will close up the wound.

When scaling a tooth we should not do this partly today and tell the patient to come again tomororw to have it completed; do not keep opening the wound by continued scaling or probing. When a surgeon makes a wound he wants it to heal as soon as possible. If he is compelled to open it up again he considers it a bad piece of work. If you scale but one tooth at each sitting do it thoroughly and finally, then you will have done your work on a scientific basis. Don't keep pricking at the gums all the time and thus opening wounds which run the risk of becoming reinfected. This, I believe, is one of the great advantages of Dr. Younger's and Dr. Good's methods; they make but one operation. I believe if we shall adopt these surgical methods in connection with the prophylaxis treatment, we shall all come to the conclusion that pyorrhea alveolaris is a curable disease. I can almost assure you that pyorrhea is curable if treated along these lines.

Dr. J. W. Sweetnam: I have read the paper, but not heard it presented. Dr. Rogers has done admirably in presenting the matter, and in substance it recommends thoroughness in operation. There is only one point in which I would differ. I use medicines; sulphate of copper has been a great help to me in the treatment of pyorrhea Absolute thoroughness in doing the surgical work is the keynote to success. We all know when we leave any deposit on the roots of the teeth that the gums will not heal. The first thing is to remove all deposits from the roots, and when this is accomplished, it makes very little difference what medication is used. I find it convenient to use sulphate of copper, for its stimulating and astringent reaction.

Many make a mistake in undertaking more than can be thoroughly done at each sitting. If it be one tooth only, well and good; so far as you go do the work thoroughly. Even with our best efforts there will be cases sometimes that will not heal; then we have to go into the pockets deeper and see what the cause may be. We don't have to do this very many times before we get results. There are lots of cases where I have failed in my first effort because I left some particle of deposit there, and the gums failed to heal. In these cases, after they are thoroughly healed, I believe they are more immune to pyorrhea than they were in the first place. It is a little harder to keep the the teeth clean; patients must help, and they will if we give them the proper instructions. I have cases that have been under my observation 20 years with no recurrence. People apply to us with teeth that are practically lost. But where there is proper root to give the teeth the strength, there is no such thing as not healing. And all there is to the healing is to keep them clean after the deposits are once thoroughly removed and the teeth polished.

Dr. E. T. Loeffler: There is one point I wish to emphasize and perhaps draw your attention to a little more closely, and that is the education of the operator and the patient. I don't believe this work can be done by everybody, without an effort. In doing this work we must have oral prophylaxis. With a great many the first question is: I can't do that, as my patients won't pay for it, and we do only so much work as we feel the patient will pay for, consequently we do not get such results that we ought to. You, and not your patient, are, then, to blame for defective work. Patients will pay if they get value received; if you don't give them the value they will not pay. You can't do everything on your first trial. You can't expect to be successful at the treatment of pyorrhea without first learning how to do it. Learn how to handle your instruments, and then get your patients thoroughly interested; if you do not, your work will not be what it ought to be. Buy suitable instruments and learn how to use them, and do the work thoroughly and get the co-operation of your patients.

Another point: I believe the systemic condition of every patient treated for pyorrhea ought to be looked after. If the system is as it ought to be we should not have this local manifestation at all. That looks like good sense. Thoroughly treat the local disease, that is right; but there is some disturbance behind it. If you can get the patient to do a little more exercise, drink plenty of water, it will help to bring about better and desired results; these things are absolutely necessary. One case I have in mind the patient suffered a great deal of pain, couldn't sleep nights. I recommended a little more outdoor exercise, plenty of fresh water to drink, and was surprised to notice the beneficial results.

Dr. Wood: I think that this paper is the best I have ever heard on the subject; it is like a very good sermon. I should like time to re-read and to digest it without discussing it just now.

Oral prophylaxis as a treatment for pyorrhea does not mean simply cleaning teeth and substituting the name oral prophylaxis. It means persistent hard work intelligently applied, and no lazy man need think it an easy procedure.

Oral prophylaxis is one of the most important operations we can put our efforts into.

I believe there are as many teeth lost from lack of this treatment and more disorders brought about in the general system than from neglected cavities in the teeth. The common practice in vogue of rattling around for 15 minutes with dull scalers, or with engine polishers, is bad practice; it is only a bluff which lowers the moral fibre of the dentist and is not appreciated as worth anything by the patient; it is usually thrown in with other work without charge, and quite as often not done at all. The thorough removal of all deposits and polishing all surfaces is infinitely more scientific, more professional, more important and requires more skill than almost any other operation about the mouth. If done properly, patients invariably realize that you have rendered them valuable service and are willing to pay for your time, the same as for other operations.

A man doing oral prophylaxis conscientiously and up to a high standard cannot help doing every other operation more carefully. I have proved to my own satisfaction that practically every case of pyorrhea can be cured to stay if after all calculi has been removed the soft deposits are kept off by regular monthly treatments.

Thorough prophylaxis methods require that we put our attention to the individual tooth in scaling and polishing. Persistent work on a single tooth until one is sure no deposits remain, and after having gone over every tooth in this same careful manner, we shall feel a satisfaction in having accomplished something worthy our best efforts.

Each month will show your patients the particular places where they fail to keep off the soft deposits. Insist upon the use of good, stiff brush and plenty of powder, floss silk and quill toothpick.

Oral prophylaxis implies better fillings, better crowns, better bridges, better everything than any of us have ever done before as an outcome of pushing this part of our practice. Which one of us can or will do as good a piece of work in a badly kept mouth as he will in one well kept, that is clean and wholesome? Might as well expect a carpenter to do as good a piece of work in a pigpen as in a parlor.

There is no line of thought in dentistry more productive of good than that of prophylaxis. We cannot learn it all in a month, or a year, but it improves with every day's work. When all colleges put in a chair of oral prophylaxis, and the professor in charge insists upon it, and stays by the student until he has properly cleansed the mouth of clinical patients, this subject will be properly recognized by the profession generally. I believe we should fit ourselves in any branch of our work so that we have the utmost confidence in our ability to get results up to date and satisfactory to ourselves and patient. No branch requires any more skill than prophylaxis, and I advise any man who wishes to make a success of general dentistry to either go at it earnestly himself or get some dentist to do it for him. Then, when an aggravated case comes in, he will not say there is no help for you, and send them to the extracting office. I know there are many people going about sick who would not be if they knew where to get their mouths put right.

Change of environment is what we must bring about to accomplish the cure of pyorrhea.

EFFECTS OF MERCURY IN THE MOUTH.*

By Dr. O. M. Brown, Terre Haute, Ind.

At the Maxinkuckee meeting some years ago, we presented the results of some chemical tests on saliva, to determine whether, under any of the conditions of the oral cavity, mercury is given off from amalgam fillings or red rubber fixtures.

In these tests sterile tubes were prepared, into which various samples of saliva were placed, some alkaline, some neutral, and some slightly acidulated with the various acids found in the mouth under various conditions, each tube containing bits of amalgam or rubber filings. These tubes were kept in a moist chamber, at body temperature, for periods ranging from two to ten days, being frequently agitated. At the conclusion of the time the saliva was poured off and tested for mercury, and although the tests were carefully carried out in each case, the result was uniformly negative. Nothing was found to indicate mercury in any tube of the series. This led me to conclude that the theory of the harmful effect of mercury was a theory only, and that the improvement, following removal of fillings, might be a result of suggestion.

Since then various procedures have been followed to test these conclusions.

We have made red rubber plates for patients of all temperaments and physical conditions, and have only had ill results where the fit was bad, or the placing of the fixture was preceded by some gastric trouble. In these cases of weakened mucous membranes, there has been scalding, due to heat retention by the rubber, due to its nonconduction.

We have placed amalgam fillings in the mouths of persons of all ages and conditions, with no ill effects traceable to mercury.

In cases where patients were referred to us for removal of all amalgam fillings, we have removed those visible to patient and physician, leaving concealed ones, and immediate improvement was noticed. What is this but suggestion?

We have, in other cases, removed ALL amalgam, placing gold, noting improvement for a few weeks, then a return to the same conditions and symptoms which had been placed to the credit of mercury.

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*Read before the Indiana State Dental Association, June, 1907.

Concluding that the cause of trouble, in the case of plates, might be in the weakened membranes, and the preventing of heat dissipation, by the rubber, the plate would be ordered out, or kept at the office for a day or two, when improvement would result in the membranes covered by the plate, but no change in other tissues.

Again, we have placed amalgam fillings profusely, in the case of persons with bad stomachs and ill health, due to lack of ability to masticate and insalivate food, and after restoring the teeth, and instructing as to diet and mastication, conditions improved, with no relapse such as mercury would bring.

The same has been noted in the case of well-fitted plates of red rubber.

A search for reports of experiments, with results proving the theories of ill effects of mercury, has been vain so far.

As to the cause back of the oral lesions noted by those opposed to mercury, I shall not here attempt to explain by giving any one cause, since the causes are probably various.

The regular physicians give one opinion, the homeopathist another, the osteopath still another, while the Christian Scientist says there was nothing the matter from the start.

Being entitled to an opinion, along with the others, we would say that it is probable that the indigestion and the acidity, so regularly present, making weak membrane of low resistance, should be regarded as the cause rather than the effect.

Our opinion is supported by this fact, that all dentists have noted indigestion, acidity, scalded membranes, intestinal and stomach disorders, and ill health—all the symptoms given as caused by us ignorant dentists and our use of mercury-tainted materials, in persons in whose mouth no amalgam or red rubber ever found its way.

We conclude with the belief that the man who accuses us must prove his case with facts rather than fancies.

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DISCUSSION.

Dr. W. C. Hessler, Crawfordsville, Ind.: So far as this paper is concerned, there is not much to be said, because it is worked out on the science of chemistry, and I will confess that I do not know as much about chemistry as I did when I was in school because the science of chemistry has advanced so rapidly that I have been unable to keep up with it.

As far as I can learn, the coloring matter in our vulcanite is largely, especially the red rubbers, the sulphide of mercury, and so far as I can learn, it is inert physiologically, and I do not know of any toxic effects from the sulphide of mercury.

Mercury in amalgams, I think, is largely inert, because it is necessary to dissolve amalgams in strong acids to dissolve them at all, and to drive off the mercury from the amalgam requires considerable heat. Dr. Brown, in his paper, has covered the ground, and covered it better than I could do it. I believe it would be better if some of our members who have an understanding of homeopathy would discuss this paper. As little as I know of the teachings of the homeopathic school, the high potencies have not very much effect.

NEURALGIAS.*

By Dr. C. M. Cahill, Valparaiso, Ind.

Not having been so fortunate as to have been born in the state whose literary geniuses have been rapidly filling the front rows, it is with considerable temerity that I advance to this stage. Believing that you all are as familiar with the etiology of this disorder as I, a very brief review is all that I shall attempt. I will then call your attention to a few peculiar cases of neuralgia which, as they say in a certain section, "I have met up with," together with the remedial agents I have used.

A large proportion of patients presenting live sedentary lives. Their surroundings are often unsanitary, and the patients themselves quite frequently seem to give little or no thought to personal hygiene. A complete knowledge of the habits, vocation and surroundings of the patient is often of inestimable value in determining what line to pursue. As a general thing, the patient presenting with neuralgia is in a debilitated condition, atonic and anaemic. Nearly always they will require some general nerve tonic, the selection of which lies with the discretion of the dentist. If the neuralgia is the result of some exhausting fever or long illness, bitter tonics are especially helpful. I have used and like such as Nux Vomica or Compound Tincture of Gentian. Neuralgias of miasmatic origin seem to yield readily to a tonic of quinine sulphate.

First patient. Lady, age 34; married; teacher, busy from 8:30 a. m. to 6 p. m. Work nervous and tiring in its nature. No devitalizations in this patient's mouth whatever. Could find no cavities. Removed all metal fillings in teeth. Found no evidence of pain due to improperly inserted fillings. Could not sleep without taking one, two or sometimes three chlorodyne tablets. Being well acquainted with the family, I knew she always got a liberal supply of good, stimulating food, and that her habits were regular. A survey of the home found everything in a sanitary condition. Absolute quiet—rest from work—was what I considered necessary in this case. She would not stop work, but she would take medicine. I gave her Fluid Extract of Gelsemium, from 10 to 20 minims every three hours.

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*Read before the Indiana State Dental Association, June, 1907.

At the close of the school year the lady took a rest. At the end of one month she wrote me she was free from neuralgia. She remained out of school work for a year and built up her system. During the past two years she has been again at her school work, and I have done considerable operating for her. She has had no return of the neuralgia. In my opinion, this was a case of a nervous break-down, and a rest was indicated more than anything else.

Patient No. 2. Male, 26 years of age; all the posterior teeth, left inferior maxilla, gone. Badly scarred face. Thinking that as much his business as mine, and being somewhat modest, I did not ask him how he got scarred in that shape. Complained of great pain extending from lower left cuspid to temple and seemed to affect the eye. I examined teeth carefully, but found none that were carious. Found the gums in the pleasing state we find where toothbrush and mouthwash are as religiously attended to as they should be. Tried Fluid Extract of Gelsemium on this patient. Result negative. Presented in a week "nearly dead," he expressed it. Thoroughly dissatisfied with my diagnosis and quite ashamed of myself, I again placed him in the chair and began to look over his mouth again. Grasping the jaw with my finger and thumb, I began slowly to pass backward and forward over the gums from cuspid to condyle of the jaw. In the region formerly occupied by the first molar, I found a small nodule which I had not before noticed, and which, upon pressure, I found gave great pain. Anesthetized patient and removed a good-sized shot, together with a fragment of the maxillary process, which, being fractured, was evidently pressing against the nerve. Removal of the shot and fragment of bony process put a stop to the neuralgia.

Patient No. 3. Female, 37; married, greatly emaciated and anaemic. Mouth full of badly-decayed teeth, broken-down, abscessed roots, and pus galore. Gave a saline cathartic (Liquor Magnesii Citratis) and a pus-evacuating agent (Normal Tincture of Echinaceae) in the proportion of two drachms in a four-ounce mixture of water. Dose, one teaspoonful everv three hours, and instructed her also to use the same as a mouth-wash. As an eradicator of pus, I find no agent its equal, and use it externally and internally. This patient had been for a long time suffering with toothache and had given her teeth no attention. After a few days' use of the Tincture of Echinaceae, I extracted the abscessed roots, and in due process of time looked after the remaining teeth. This patient needed a bitter tonic, and I prescribed Compound Tincture of Gentian; one drachm three times daily.

Quite often is it necessary for us to call in our co-laborer, the physician. After prescribing a number of drugs, massaging and anointing a patient with ointments and unctions, he one day presented with a tent or plug of cotton in his ear; complained of earache. I called my physician, who, upon careful examination, found a perforated ear-drum, considerable infection, and a very marked otitis media. The clearing up of this infection cleared up the neuralgia.

A standard materia medica mentions about 125 remedial agents to be used in neuralgias. I have mentioned a few with which I have been successful. You have a large number left from which to choose so that your success or failure need not depend upon the adoption of any of the afore-mentioned.

While I am aware that cataphoresis had its day and has been relegated to the museums of antiquity (at least so far as dentistry is concerned), nevertheless, I have begun to use the blue ray for the relief of pain, and strictly speaking, any pain is a neuralgia. I should like to know if any of you here have tried this agent. The London Lancet, May number, quotes Professor Redard as saying that he can "produce a condition of general anesthesia sufficiently profound for painless performance of an operation of short duration by using an electric light of 16 candle-power enclosed in a blue-glass globe, causing the patient to gaze into the light and enclosing both light and patient's head in a blue cloth, to the exclusion of other light. I do not know whether this agent has any permanent remedial action other than its anesthetic effect or not, but I do know, from personal experiment, that the effect will last from a half to a full day's length.

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DISCUSSION.

Dr. C. C. Miller, Plainfield, Ind.: Dr. Cahill has brought out a number of points that to me are very interesting; his manner of treatment for facial neuralgia is entirely new to me, and the paper has been very instructive. I think there is no line of cases that we have to deal with that is more annoying, as a rule, than facial neuralgia, or any other sort of neuralgia, for that matter. Dr. Cahill has said that any pain is a neuralgia. Some authorities put it in the light that any pain we cannot find any other name for is a neuralgia, and that is about the way I sum up the subject of neuralgia. There are a great many pains that I have never been able to find any other name for except neuralgia. Possibly that is an easy way to get out of it. The only reason why these cases are so very annoying to us, I think, is because of the fact that we do not fully understand them; at least, that is the case with me. And I will admit that I am, in the majority of cases, unable to find the real cause of the discomfort which presents itself to my office as purely facial neuralgia. The causes to which we ordinarily expect to attribute it are such as an anaemic condition, hereditary tendency, lack of vitality, or something of that sort. My observation leads me to believe that about 75 per cent of the cases of neuralgia that come to us are among women, and I believe that we can attribute the cause, in a measure, to some of the peculiar conditions in the lives of women; some peculiar changes that take place in their lives. At least, I attribute it to that very largely.

Anaemia is very closely associated with neuralgia, and these conditions go, in a measure, hand in hand. There is a condition that we might term neurosis, which is also very closely akin to neuralgia. I think neurosis has been defined as a functional disorder, not dependent upon any discovered lesion; and under the head of neurosis I would mention neurasthenia, and would define it as a nervous exhaustion or weakened condition of the nerve cells. The other subdivision I will call hysteria, and under that head I would make two subdivisions, or rather I have seen authorities that have made these two subdivisions, which, I believe, are worthy of consideration. The first is a false hysteria, which is a lack of mental discipline; and the second a true hysteria, where the ideas control the body and produce marked changes in its function—a borderland type of insanity. I believe these are thoughts that are worthy of consideration.

Other conditions that are found to be very annoying—and, I believe, are very closely associated with the cases of neuralgia that we frequently meet in our lady patients, who are particularly susceptible to these troubles—are very often found in anaemic patients; and I think we can attribute these cases to causes such as hygienic conditions and surroundings, poor ventilation, lack of proper nourishment, or something of that sort.

I believe this is all I have to add to the paper, and so far as discussing any of the cases mentioned, I think Dr. Cahill has made them very plain.

Dr. C. M. Cahill, Valparaiso, Ind.: I wish to beg the pardon of the doctor who was to discuss the topic assigned me. I was away from Valparaiso for some time, and did not receive notification until the day I arrived here, to whom I was to send copies of my paper.

I neglected to give you a formula for an ointment to apply along the line of an affected nerve trunk, where you so often find tender spots.

Atropine	grs. ss
Aconite	grs. jss
Oleum Tiglii	gtt. ij
Petrolatum q. s.	oz. j

A small portion the size of a pea rubbed over the irritated area will give relief. Care must be taken in these cases to see that there are no abrasions of the skin, no pimples or eruptions. If there be any of these, the next day after using the above you will not be able to determine whether your patient is about to have measles, scarlet fever, or something else. Atropine, or any of the salts, are very readily absorbed; therefore you will be careful in the use of this prescription.

With regard to those "hysterical patients" the doctor has just mentioned, along with those wise ones who diagnose their case by aid of the almanac, all that can be done is to watch for such and beware of them. I treated for some time a woman who "had read many physician's books," and who had many symptoms, the most permanent one of which seemed to be facial neuralgia. I was positive that she had no such disorder. She did remarkably well on a supply of blank tablets (placebos). I one day told her to go to the drug store and get a bottle of blanks and she would be all right. I've seen nothing of her since, but understand she is quite cured of her neuralgia.

THE ADVANTAGES AND DISADVANTAGES IN CASTING GOLD INLAYS UNDER HIGH PRESSURE WITH THE PRESENTATION OF A SIMPLE ELECTRICAL HIGH-PRESSURE CASTING DEVICE.*

By Weston A. Price, D. D. S., M. E., Cleveland, Ohio.

I wish to preface this paper by giving to Dr. Taggart, of Chicago, full credit, so far as I am concerned, for the suggestion of the use of a gas pressure in connection with the casting of dental restorations. I will, however, show an electric arc furnace with which I made cast restorations about four years ago, not, however, with sufficient success to continue its use, though some of the solid gold crowns made with it are being worn and giving good service.

The advantages in casting gold inlays or any dental restorations or fixtures are, that you can in one simple operation reproduce, in the minutest detail, all of the exactness in shape, contour, occlusion, adaptation and finish that you can relatively easily prepare in wax; I say relatively easily, for the wax is not only very easily moulded and carved, but lends itself so easily to the securing of contact surfaces, both with the adjoining teeth of the same jaw and the occluding surface of the teeth of the other jaw. The desirability and advantage of the casting method over building up under the blowpipe will be in proportion to the much or little exact difficult detail to be secured.

For example, an inlay having no occluding surface or a very simple contour will be very easily produced under the blowpipe without investing and with less trouble than to invest for casting. On the other hand, a large restoration involving, besides an accurate adaptation to the surface to which it is to be attached, an adjustment to the contact surface of one or both of the adjoining teeth and an exact and difficult occlusion with the opposing teeth, will be produced by the casting method in a fraction of the time required to build it too large in every direction and grinding or filing to the exact size. In general, the advantages of a casting method are in proportion to the amount of difficult detail required.

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*Read before the Northern Ohio Dental Association, June 4, 1907.

In restoring, for example, the mesial, distal and occlusal surfaces of a molar, the impression will not only give in accurate detail all the surfaces and margins of the cavities, but also the mesial and distal contacts with the adjoining teeth, which of course will not draw until these surfaces are properly formed. The occluding surface is secured by the patient biting into the wax while in place. Just here is one of the greatest disadvantages of the casting method, viz., the difficulty of removing any mouldable substance without distortion. Of course very much depends on the shape of the walls and margins of the cavities and the position of the adjoining teeth, but the writer finds that in the majority of such cases, if not in all such, a better restoration can be secured by the use of a very thin platinum matrix under the wax. In fact, I use a platinum foil-lined wax impression for nearly all inlays, whether made directly with the blowpipe or cast. The detail of producing is very simple, the cavity being prepared so that an impression can draw a piece of pure platinum about one-three-thousandth to one-six-thousandth of an inch in thickness, according to the case, is carried into the cavity with cotton and pliers, and being so thin and soft adapts with very great facility and ease without so much tendency to puncture or tear as the thicker. No attention is paid to prevent folds or laps, it being so thin. It is removed and orange sticky wax (not yellow) is warmed and dropped into it and partially chilled and replaced into the cavity and packed to place with ball and and ball-headed burnishers and also by the patient biting on tough, soft rubber. The wax carries the thin platinum very accurately to every margin and surface and is carved and moulded to produce the contour and contact point or points, also occlusion. Unless for casting, the contour and contact points and occlusion are not necessary. Before removing it is chilled with a stream of cold water, which hardens it so dense that it will retain its shape very perfectly unless the cavity has undercuts. This wax answers very well for casting from, though does not leave as clean a cast as a colorless was if burnt instead of being melted out by absorbing while heating the still wet instrument, in which case the steam forces it all out.

The wax alone, as an impression medium, as suggested by Dr. Taggart, will not, in the writer's hands, produce so perfect margins from the casting method, as when the very thin platinum is used with it because the thin wax forming the angles has not the strength to retain the exact detail. It should be said that it is usually more difficult to draw impressions of approximal cavities if the contour and contact point are accurately made than where they are removed from the impression before drawing. It is relatively easy to make a very accurate artistic occluding surface, including a proper masticating surface, while the impression is still in the cavity. By having the patient not only bite into the wax, but make the movements of mastication, the general surface is secured which can, while in place, be modified into a normal crown form with specially formed instruments to produce the sulci. Some of the final finishing and forming can be done best after removing from the mouth.

In the casting furnace presented here I occasionally cast two or three such pieces at one cast, connecting them together to one common gate like a bunch of cherries with short stems and with no extra trouble.

Another disadvantage in casting over the blowpipe is the slight additional trouble of specially investing. This is not a serious item since with this apparatus any average office girl can do it and make the cast as good as the operator himself, and thus saving his time and turning her service into profit at a much higher rate than her ordinary duties can do.

Another advantage of this method of casting is that, since the labor of finishing is reduced to a minimum, there is consequently a very great saving of time, gold and finishing materials. In other words, the operator can produce a restoration with a value which, in proportion to his time and energy expended, will return him a hundred per cent. larger profit. This will be more particularly true in the construction of bridges than inlays, but just here comes in a new and very important difficulty.

With the method as suggested by Dr. Taggart, the casting temperature of the boiling point of the metal is so high of necessity that only pure gold can be used without change, and alloyed gold is rapidly changed by the oxidation and evaporation of the alloys. For example, if we heat 18k. gold to its so-called boiling point it is not 18k., but very much more, the alloy rapidly burning out, a matter so serious that it becomes at once a serious objection to the making of bridges by the casting method, as he uses it. I have found that the temperature at which good casting can be done is very closely in inverse proportion to the pressure at which it is done, so that if it takes a temperature of 2800° F. to get a good cast with pure gold at 25 lbs. pressure, an equally good cast will be obtained at 2300° from 80 lbs. pressure or at 2100° from 150 lbs. pressure per square inch. This is one of the important features of the device here presented. There are several disadvantages in the use of the oxyhydrogen flame as compared with the electric current such as, much greater difficulty in using, expense and giving out of the supply of oxygen and the injury to the eyes of looking on the incandescent gold and surrounding investment and the application of pressure from a large supply source. In the device here presented all these are reduced to a minimum or eliminated. The only effort required is the turning of the switch, and the gold need only be melted to just a little beyond its melting point. The pressure is obtained from chemicals, and the temperature is indicated by a pyrometer.

The following is a detail description: The investment and crucible are contained in a rotating air-tight head. The gold is melted with the crucible in a vertical position, and when ready to cast (as indicated by either the pyrometer or by removing the safety valve and looking directly at the melting gold, with or without colored glasses), a capsule of a few grains of a suitable chemical, I will use here four grains of smokeless gunpowder, placed in the inverted tube; and it cannot fire until the head is turned over, which when done allows the gold to turn into the gateway of the mould, and at the time it is there the powder falls into it or on a firing pan, and the pressure rushes up to anything desired, thus forcing the gold into every detail. At 500 lbs. the gold will be forced all through the investment in the form of minute hairs and almost microscopic beads and globules; at 150 lbs. it will strain the mould, and at 80 to 125 lbs. will produce most beautiful results at but little above the melting point of the gold used. The needle of the pressure gauge indicates accurately the pressure attained and how rapidly it decreases. The safety valve absolutely prevents all possibility of accident from explosion, for the device is constructed to withstand 2,000 lbs. per square inch and the safety valve blows off at 300 lbs. If the charge is not sufficient to raise the safety valve there is no noise, the needle of the pressure gauge showing the explosion. If the charge raises the valve it blows just like a little steam boiler blowing off.

I have made several different designs, using different principles. One automatically injects a jet of water into the hot muffle at the moment the ingot is poured, and it produces excellent results. Its disadvantages are that the water is mussy.

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DISCUSSION.

Dr. E. Ballard Lodge: Until recently the dentist employed the founder's art chiefly in such operations as the making of his plaster of paris casts, pouring the limpid material into his impression; or, in the making of the die from fusible metal, zinc, or babbitt, and pouring the moulten metal into the prepared mould; or, the production of rubber or celluloid plates, which is essentially a casting operation; or, in the making of Watt's metal and aluminum plates or dentures. The last-named, viz., the casting of aluminum dentures, more nearly simulates the procedure under consideration than any of the other casting operations in dentistry, inasmuch as it makes use of pneumatic pressure to force the metal to the uttermost parts of the mould.

We are living in a marvelous age. Dentistry, since its birth, always in the forefront of progress, continues to advance with triumphant strides, and there seems to be no halting place. Not a decade ago the gold shell-crown was supposed to be the climax of perfection for the restoration of badly broken-down molars, but now such practice, while valuable in extreme cases, is only indicated when a gold inlay is not feasible and the places in our practice where the gold inlay is the thing par excellence are very frequently met with.

I would not, by this seeming fondness for gold inlays, have it appear that there is not still a large field, even in quite extensive cavities in the molar teeth for the use of that restoration method which has stood the test of time, viz., the gold-filling; but in cases of teeth in that condition, where formerly the thing indicated was either a plastic filling or a gold shell-crown we now have a valuable recourse in the gold inlay.

Until recently gold inlays have been made either with or without investment, by the blowpipe method. The advantages of the cast-gold inlay are admirably set forth in our essayist's paper, and the truth of what he says must be recognized by every one. Dr. Price says: "The advantages in casting gold inlays or any dental restoration or fixtures are that you can, in one simple operation, reproduce in the minutest detail all the exactness in shape, contour, occlusion, adaptation and finish that you can relatively easily prepare in wax."

An advantage which a cast-gold inlay has over the inlay of the blowpipe kind for occlusal cavities in molar teeth, and an advantage which, by the way, such a restoration has over a gold filling, is the nicety of articulation that may be so easily attained.

The wax model of the inlay enables one to get the ideal contour and occlusion with such ease that it is a pleasure to produce such fillings. Then, too, there is that invaluable quality of any approximal filling, the contact with the adjacent tooth. This, do you say, can be attained by other methods? Yes, but there is the fitting and trying and filing and grinding which, with the cast-gold inlay, is greatly minimized.

Dr. Price's use of the very thin platinum foil has a dual value. It enables one to attain greater accuracy at the margins, as it gives a much-needed strength at those critical points which wax alone is scarcely able to do. Furthermore, the platinum becomes fused into the gold when cast, and thus becomes alloyed into the mass, thereby rendering it more resistant than pure gold alone.

Not all gold inlays by any means would the writer consider best made by the casting method. Such are cases as require no particular attention to contact or articulation, as happens in buccal and lingual cavities, and often in the case of approximal and occlusal cavities, where the adjacent teeth or opposing teeth are missing. In such cases I would consider the blowpipe method as very satisfactory, if not preferable. The admirable method developed by Dr. Henry Barnes of flowing pure gold into a platinum matrix without investment is not to be abandoned where so simple and efficient a procedure can be employed.

However, the cast-gold inlay, it seems to me, is likely to become the one more frequently called for.

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AMERICAN SOCIETY OF ORTHODONTISTS.

The seventh annual meeting of the American Society of Orthodontists, in Detroit, Oct. 2, 3, 4, 1907, was one of the best this society has yet held.

In his address, President Dr. H. A. Pullen spoke of the position orthodontia holds in the profession, and made a plea for specialization. He then turned to the practical side of orthodontia and took up for consideration the metals used for bands and arches, and called attention to the almost exclusive use of

German silver, and platinoid, by older and prominent orthodontists. After comparing the relative merits of German silver and alloys of the noble metals, he made a plea for the use of spring-gold arches and iridio-platinum bands.

In the discussion, Dr. J. L. Young favored the use of spring gold for arches and coin gold for clamp-bands, with platinum-iridium for retaining bands.

Dr. L. S. Lourie favored iridio-platinum and alloyed gold.

Dr. R. Ottolengui called attention to the advantages of soldering iridio-platinum appliances with 24-karat gold. Dr. B. Abell spoke of aluminum bronze as a desirable material for bands, as it does not discolor nor corrode in the mouth, and is as soft as German silver when annealed. An objection is its low-fusing point, but it can be readily soldered with 14-karat gold solder. Dr. Casto thought it ridiculous to compare the noble metals with German silver. Dr. F. C. Kemple made a plea for German silver in that there was less tendency of the teeth to decay under German silver bands, should the cementing not be perfect or the band loosen, or under uncemented clamp bands, than those made of the noble metals, especially iridio-platinum. He had observed a perceptible white decay under iridio-platinum bands that had been loose but a short time, while he had seen no decay under German silver clamp-bands that had been worn for months without cementing.

Dr. Varney Barnes spoke of the liability of decay under iridio-platinum bands, and attributed it to some electrolytic action between the metal and tooth. Dr. Henry Baker preferred German silver for expansion arches, but noble metals for bands, stating that he thought gold about the best material for clamp bands.

Dr. D. W. Flint, Pittsburg, read a paper entitled "Early Treatment for the Correction of Malocclusion of the Teeth." The writer referred to the fact that the average general practitioner does not detect incipient malocclusion, and he believed that every orthodontist owes it to his confreres to come before them, giving some of the light and knowledge that he has received.

To the query, "Why treat cases so young," he answered, because it is so much easier in every way; in fact some cases have to be taken early if we want to accomplish perfect and permanent results.

He quoted from Dr. Angle, that the deposit of bone around the roots of teeth is not complete at times until the age of 12 or 13, and that the sockets are much larger in childhood, adding, why should we not in our correcting let nature do her first work rather than tear down and then have to resort to a secondary building-up process; or, in other words, let us guide the teeth as they erupt into their proper place and the deposition of bone will be as nature first intended, around the roots of the teeth.

Another thing favoring early treatment is that children do not object to the unsightliness of appliances, and their inconvenience seems trifling, while it is different with older persons.

The essayist said that while he did not believe it necessary to interfere in all cases of malocclusion in the deciduous teeth, it is necessary to interfere in all cases where there is a lack of development of the jaws as in Class II, Div. I, where there is a pathological condition operative or developing cases of Class III to obtain a normal interlocking of the first molars.

At about the age of four years the child's incisors should begin to separate to make room for the coming permanent teeth, and if this does not take place normally, nature ought to be stimulated by some mechanical means, whereby the necessary room is provided. Every child at this age should be seen and passed on as to whether or not there is going to be room for the oncoming permanent teeth. We orthodontists cannot do this, but the general practitioner should have the interests of his patients so at heart that he should explain to the parents about the development of the teeth, when to expect this condition and advise preventive treatment if conditions justify it.

As factors in arresting development, he spoke of early loss of the deciduous teeth, caries, adenoids, habits, non-eruption, tardy eruption, loss of permanent teeth, accidents, abnormal frenum, supernumerary teeth, etc.

Dr. W. V. B. Ames, Chicago, read a paper on "Cements, Their Uses in Orthodontia." The essayist said:

In regard to qualities desirable in this class of work and the means of obtaining them, two come to my mind most prominently: adhesion and prompt setting in the presence of moisture without accompanying shrinkage.

Adhesion of oxyphosphates to surfaces of enamel or metal depends upon the density and strength of the granulated surface of the cement, upon the form of granule agglomerated to compose the surface, the condition of the surfaces presented for cementation, and absence of shrinkage.

The mixing of an oxyphosphate of zinc for the setting of orthodontia appliances is an art not acquired without some careful attention to details. With a given combination of acid solution and powder, and given humidity and temperature of air and slab, there is the possibility of a very quick setting with granulation, or a mass that will never set, after having made a mix of a given consistency, all this depending on a too rapid or too gradual addition of powder, or too little or too much spatulation. The term "hydraulic," as ordinarily applied to cements, implies that the ingredients of a certain cement will harden even in the presence of a large excess of water. A desirable setting quality of these cements may be secured by depriving the cement liquid of a slight amount of water, depending upon the ability of the hardening mass to take up the proper amount of water for its water of crystallization, without having the balance disturbed at the surface in so doing. It will be seen that an oxyphosphate needing some additional water for proper crystallization need not necessarily be applied to a visibly moist surface, but that if a slight amount of water needed were present it would be taken care of. Hence it is not necessary in cementing bands, etc., to desiccate the tooth, but simply wipe comparatively dry with absorbent cotton, and what little moisture remains will be taken up by the cement.

This hydraulic property can be embodied only in such formulae as tend to give rather quick setting, as otherwise there will be a drawing away of the acid upon subjection to moisture, disturbing the balance proportion of the formula, with the result of a weakened and porous mass to the depth of the disturbance.

Dr. Henry J. Hartz, Detroit, read a paper entitled "The Influence of Nasal Obstruction in the Child Upon Development of the Face, Palate, Teeth and Chest."

This was a study of development, presented in a masterly treatise. It was of a character, however, that an outline sketch could convey but little to the reader. When published the paper should be not only read, but studied.

Dr. I. N. Broomell, Philadelphia, presented a paper on "The Genesis of Blood Supply to the Teeth." He said the thought that prompted the writing of the paper was a consideration of how young, growing teeth are supplied with blood and the relationship which exists between the tooth and its vessels during this period.

He maintained that the generally accepted idea of a single blood vessel from the internal maxillary artery entering each tooth root was erroneous, and he presented a number of lantern slides, showing that developing teeth from the sixth embryonic month to those whose roots were almost fully formed had no direct connection with the artery. The blood supply to the developing teeth, he believes, comes through the walls of the follicles independent from the main artery.

In the peridental membrane there is a free anastomosis between two sets of vessels. The tissues of epiblastic origin are supplied by superficial vessels, while the walls of the follicle and dental papilla are supplied with separate vessels.

Thus he believes each tooth has virtually a circulation within itself and that little harm can come from generous pressure employed in orthodontia.

The report was simply on the blood supply to developing teeth, he having made no investigations up to this time on teeth fully erupted and calcified. From his studies thus far, his conclusions are: First, the blood supply to the dental follicles and growing teeth differs from that of completely formed teeth in mode of general distribution, i. e., that while there may be a blood vessel or single artery twig that enters the apical foramen in fully developed teeth, passing directly from the artery in doing so, the blood supply of teeth previous to this time is as described, from the walls of the follicles independent from the main artery.

Second: The theories of Constance and Lepkowski regarding the genesis of the blood supply to the teeth (a single vessel entering the apical foramen of developing teeth) is erroneous.

Third: The practical bearing this paper may have to orthodontia is only such as may be supplied when this difference in early arrangement of the blood current is understood and generally accepted.

Dr. Max Ballin, Detroit, read a paper on the "Osteoplastic Resection of the Mandible,"and presented a case showing completed operation.

Dr. R. Ottolengui, New York, presented a paper entitled "A Contribution to the Study of the Etiology and Treatment of Cases in Class II."

The essayist maintained, that while adenoids might have an influence in the causing of Class II cases, malnutrition is the great cause resulting in non-development of the jaws; and the sooner the causes of non-development are removed the better and the quicker will be the results.

He took the position that in Class III cases the superior maxilla may not be fully developed on account of malnutrition, and in such cases the first permanent molar tooth would not be in normal position.

The essay was illustrated with lantern slides and was a valuable contribution to orthodontia.

Dr. Henry Baker, Boston, read an essay entitled "Some Observations of the Temporo-Maxillary Articulation in Changing the Occlusion." This was a discussion of the changes that take place in the articulation of the mandible in shifting the position of the condyle. It was his opinion that the glenoid cavity is changed in form to accommodate itself to the new position of the mandible.

Dr. N. S. Hoff, Ann Arbor, read a paper on the subject, "What Can Oral Prophylaxis and Orthodontia Do for Each Other?" The essayist said he would present for consideration three propositions, that the members might determine whether oral prophylaxis has any relation to them and the practice of orthodontia.

The first proposition was: "Can oral prophylaxis as at present practiced be made an important factor in the normal development of the teeth and their surrounding structures, rendering orthodontic interference unnecessary or less difficult?"

He made a plea for early interference, and predicted that in the near future the best work of the orthodontist will be done in conferring with mothers of infants as to the best measures to be adopted to secure a normal development of the teeth and jaws of the first dentition.

He could not help believing that if more pains were taken to secure perfect deciduous dentures and to keeping them in perfect condition until the proper time for their removal, that we would have less malocclusion of permanent dentures. Regarding the influence of prophylactic treatment on the deciduous teeth, he said that in the few cases he had under observation he was confident that an early application of the system of oral prophylaxis has had a most beneficial influence not only in retarding and preventing decay of the teeth, but he believes a good influence towards better development of the permanent teeth and jaws has resulted.

The second proposition was: "Can prophylaxis methods offer anything helpful during treatment for correction of malocclusion?"

With modern orthodontia appliances the regular cleansing of the teeth with brush and powder, in many instances as usually applied, is impracticable, and mouth-washes are insufficient.

Appliances should be carefully adjusted so the exposed surface of the teeth can be easily reached and cleaned. He suggested that the patient then carefully brush the teeth regularly, using a soft brush and a suitable toothpowder. The patient should be instructed to take a teaspoonful of powder in the palm of the hand, and after wetting the brush, incorporate the powder completely in the bristles and brush every portion of the teeth, and without spitting out the powder fill the mouth full of water and reinsert brush, close lips and wash the powder through all appliances, holding the head over the wash-bowl for the escaping water. This should be done morning and night.

The third proposition was: "Can prophylaxis assist in orthodontic manipulations of teeth in adults?"

In answer to this, he said that in many cases where pyorrhea has so affected the alveolar support of the roots as to cause the teeth to assume abnormal prominence or decided malocclusion, we find that after such teeth have received prophylaxis treatment and the gums and peridental conditions become healthy, there is a tendency for the teeth to return to their normal positions and relations.

Before the session closed it was voted to hold the next annual meeting in Washington, D. C., the first week in November, 1908.

EXCHANGE OF PRACTICAL IDEAS

[This department being an exchange of practical ideas, it depends upon our readers furnishing material to keep it going. Just a few practical ideas from each subscriber will make it of mutual benefit and practical worth. Are you willing to do your share? Help the good cause along by sending the editor a few practical suggestions. Send something today. Address Dr. L. P. Bethel, 1255 Neil Ave., Columbus, Ohio].

A METHOD OF MAKING ALL-PORCELAIN CROWNS.

By A. Allen Aiken, D. D. S., Buffalo, N. Y.

The root to be crowned is prepared the same as for a Richmond; that is, a trifle beneath the labial gum line, but not quite to the palatal or lingual gum, and a cap made to fit same. The band of the cap is made from 22k. 30g. and the flat surface from 22k. 36g., burnished carefully to the surface of the root and soldered to band with 22k. solder. A platinum-iridium post as large and as long as the canal will accommodate is then pushed through the cap, and when in proper position, the whole is removed and then the post soldered with 22k. solder. (Fig. 1, illustration). I place this back in position on the root and then take an impression and bite together in modeling composition,

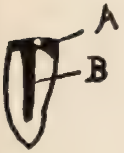

Fig. 1

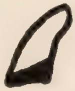

Fig. 2

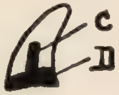

Fig. 3

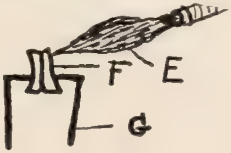

Fig. 4

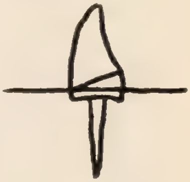

Fig. 5

Fig. 1—A, cap; B, Platinum post.
Fig. 2—Crown with step.
Fig. 3—C, Platinum post; D, 24-K gold cap.
Fig. 4—E, Soldering flame; F, The two caps to be soldered together.
Fig. 5—Finished crown.

take the correct shade of adjoining teeth, and dismiss my patient till next day or any other suitable future sitting. I leave the platinum post extending from the cap until after models are run, as it enables the cap to be held much better in position in the composition. I flow a little wax on the post and inside of cap, and then run my impression and bite in coarse plaster and attach to a crown articulator. After the plaster has set about an hour I soften the composition in hot water and remove, and if the cap does not remove easily from model, I disperse the wax with dry heat over the bunsen. My model is now ready for the crown portion. Having the correct shade, I repair to the dental depot and get a pinless "Logan" or Davis or White or Justi, any one of which will do, though I prefer the "White". After selecting the proper crown as to shade, shape, size, etc., I shape same to fit snugly over the cap, taking care that the alignment and occlusion are correct and crown just sufficiently short on cutting edge as will allow for a thickness of 36-gauge between crown and cap. I then grind a step in the body of the porcelain, first marking out the limit of the step with a separating stone, and then with a smooth, flat, wider stone make the step complete. I commence my line at the labial edge of the base of the crown, and as I extend it back I run it higher on the heel, and then so on, until I return to starting point, like Figs. 1 and 2. This step is to accommodate a gold cup, which is made of 36 pure gold and burnished tightly over base of crown up to and covering well the line of the step, and a large plat-iridium pin is placed through this cap into the hollow portion of the crown and soldered to cap with 22k. Now, with cap on crown, place on cap on root, and if alignment and occlusion are correct, attach the two caps together with a little sticky wax. Remove the whole from model and then the crown from its cap and the two caps held tightly together with a pair of pliers, the beaks turned, as in Fig. 4; 18k. solder is flowed between the caps and on bands, covering all to a smooth, even surface, being careful not to allow any of the solder to flow into the caps by coating the insides with whiting dampened with alcohol. When the soldering is completed, replace crown in cup with a good, hard-setting cement, and when same has set firmly trim down the soldered portions with stone and disks and polish on lathe. As there are several different karats of gold and solder used, I always plate my crowns with a good, strong solution of pure gold. The finished crown, in my estimation, is a beautiful work of art and has two very distinct advantages over any other crown I know of: First, absolute correct color, in comparison with any other gold-backed or cap crowns, and second, strength. The porcelain does not go through the fire and the large body of porcelain-fitted into a cap and then cemented makes a very strong, compact mass.

After crown is completed and before setting on root I am always very particular that the band does not extend too far beneath gum margin. Some who have seen the crown suggest making it bandless, but I prefer a small band; it adds greatly to the strength of the crown.

HOW TO PREVENT PAIN AFTER EXTRACTION.

By Dr. J. A. Shaw, Opelousas, La.

An application of guaiacol and glycerin a. a. applied into the socket of an abscessed tooth after extraction will relieve the most stubborn case within two to five minutes. Try it and be convinced.

A GOOD CEMENT SLAB.

By Dr. Randell M. Barrett, Norfolk, Va.

Noticing a short article regarding cement slabs by Dr. Moyer, I am pleased to say that I have not found a better or cheaper cement slab than the dead white tile made by the A. E. Tile Co., called "grip back" 3x6x½ in. They can be bought most anywhere for five cents. They do not slip and by using this color of slab one can judge the color of the mix closely. I have from four to six in use all the time.

EXCHANGE OF PRACTICAL IDEAS.

By Dr. F. B. Spooner, Brooklyn, N. Y.

In the laboratory I have a box of salt hanging near the water faucet. This salt is colored with yellow ochre, which can be procured at any paint store. When plaster is mixed, the spatula is dipped in the salt, and the color is given all at the same time. This is a trifle, but it saves an operation and gives clear color to the plaster when separating later on.

A GOOD SYRINGE.

Take an ear syringe. It is a rubber bulb with a long integral point. They can be got at a drug store for 25 cents. Take a glass tube that fits the point of bulb on the outside. Hold the glass in the bunsen, and draw it in the center, so as to make two pieces each with a sharp point. Cut with a file, and snap off. You have two pieces now, and take one and hold in the burner until it droops, and the hole is small. Put it on the tube of syringe bulb, and you will find that it will not leak if rightly adjusted.

This will require some little experiment, but when made a good syringe is had that will hold peroxide, carbolic acid, or anything that would injure metal or rubber. It can be used in any way, and sterilized in an alcohol lamp, by dipping the point in the alcohol, and allowing it to burn off. It will sputter and burn in the tube, but in no case have I found it break the tube. There is possibly no way known more effective to destroy germs than the above.

SUGGESTIONS

ROOT-CANAL FILLING.

H. G. Hardie, B. D. S., Syd.

Having as concisely as possible described the essentials requisite for the ideal filling of root canals, we turn to the special material which we consider will best attain the desired results. The material we present in this respect is oxide of zinc and oil of cloves, mixed as a paste; and a short account of the method of procedure is here necessary.

Having dried the canals and dehydrated the walls as far as possible with absolute alcohol, proceed to mix zinc oxide (Hubbuck's preparation) and oil of cloves in the same manner as an ordinary phosphate cement. Mix slowly and thoroughly, in order to obtain a thin, creamy paste. More time can be taken in the mixing than is possible with a phosphate cement, as this paste takes a considerable time to set. Having obtained a very thin, creamy paste, work a little of this thoroughly up the canal by means of a Swiss broach, with cotton-wool twisted in the shape of a cone. The cotton-wool will compress into the exact size of the canal, and being saturated with the cream, will thoroughly smear the walls, thus preparing for further filling. Remove the cotton-wool cone, and with the broach only, work up some of the cream with a pumping action, the result being it passes up the canal very readily. Next, mix the paste thicker, and again pump up until the canal is well filled. This fact may be tested by exerting very slight pressure on the pulp chamber by means of a pellet of wool, a slight twinge determining the fact that the apical foramen has been reached. This twinge will mean that the paste has come into contact with the peridental membrane. There is no tendency on the part of the paste to become separated from the main column within the canal, and thus form an isolated foreign body beyond the apex; but it merely extends beyond the apex in the form of a minute dome, thus rounding off and completely filling the apical orifice, which is often crater-shaped. (Proved by experiment). Having ascertained in this manner that the canal is completely filled, seal the filling in the root permanently, by filling the pulp chamber with a quick-setting phosphate cement. The tooth cavity may then be filled at once if desired, as the quick-setting cement prevents pressure being transmitted to the column of still soft root-filling. This root-filling takes about twenty-four hours to thoroughly set, and we then have a solid filling obliterating the canal.

We have in this paste the oil of cloves which at a previous stage of this paper we saw to be necessary for the complete dehydration of the walls. It still may continue to absorb the moisture still present within a reasonable radius of the canal. A fact which may be here mentioned in further support of the dehydrating power of this paste is found in its popular use in the treatment of hypersensitive dentine. It is found that when inserted as a temporary filling, this paste will lessen the hypersensitiveness, and thus permit of preparation of the cavity with little or no pain. Its action in this respect may be, to a small extent, due to the coagulant effect of the oil of cloves on the albumen of tissue within the canaliculi; but far more so is it due to the dehydration of the dentine, removal of moisture being the principal means of preventing pressure being transmitted to the pulp via the dentinal fibrillae. (Smale and Colyer, "Diseases and Injuries of the Teeth," p 307).

Thus, by dehydrating the walls, we have in this plastic a material which will ensure asepsis, which all our attempts could not positively secure. Further, this material hermetically seals the apical foramen, for in setting it undergoes no appreciable contraction (proved by experiment on extracted teeth), and thus not only completely seals the foramen, but entirely obliterates the canal, and in this we have further essentials regarded.

As regards ease of manipulation, all who have adopted the methods suggested in this paper will endorse the statement that no material could be easier to work, or more readily adapt itself to the walls. In this respect it closely resembles chloro-percha. The antiseptic which is desirable in order to aid resolution in the wounded tissue, we have in the essential oil used, and, having completed its work, leaves the canal aseptic and obliterated by a dry aseptic filling—one which is impermeable, preventing transudations from without the apex entering the now obliterated canal.

In concluson, we would present for your consideration zinc oxide and oil of cloves, used in the manner suggested, as the material for the ideal root-filling, in that it secures and maintains the condition of asepsis within the root canals of teeth.—*Australian Journal of Dentistry.*

◆

TO BAND A ROOT SO THAT THE GOLD WILL RESTORE ACCURATELY THE CONTOUR BETWEEN THE ROOT AND THE CROWN.

A. J. Sawyer, Manchester, N. H.

Prepare the root by beveling considerably toward the crown end. Cut the band sufficiently small to allow of its being fitted to the smallest portion of the prepared end of the root, so that when pressed to place it will stretch and closely fit the beveled portion. Now grind the root, with the band in position, as short as desired. Then grind any all-porcelain crown, preferably a detached post-crown, in length and occlusion to fit the case. Burnish or swage a piece of No. 35 pure gold to fit accurately the end of the porcelain crown next to the band.

Place the crown with the gold on the now banded root, and with the tooth in proper position mark the outline of the gold band on the gold burnished over the end of the crown, so that both the band and the gold on the crown can be removed intact, and caught together with a very minute piece of solder on the lingual side only (just enough to hold the two pieces together). This is then replaced on the root and the crown put in position. As the band and crown plate have only been slightly caught together on the lingual side, there is left some latitude in the adjustment of the band and crown plate, which are now made perfect as to their relation to each other, although they need not necessarily fit closely together. Both the band and crown plate are now slipped off; the inside of the band and the side of the crown plate where the crown is to sit are filled with powdered asbestos mixed with water, and a little wire is twisted to hold the parts in position. Then on the outside of the band, and between the band and the crown plate, flow No. 22-k. gold solder, and then cement the crown, band and post together in position on the root. When the cement is hard, the crown, band and post are removed and the band is finished down even with the crown. It is then ready to be cemented upon the root permanently.—*Dental Cosmos.*

HOW TO INVEST FOR DENTURE.

Dr. Hines.

In investing your model set it high in the first half of the flask; that will bring it so that the ring of the flask in the second half will come well over and keep the plaster from fracture. If the plaster surrounding the model does not fracture in some way it will not let the pink rubber be forced out. This can be obviated by investing the model high in the first half of the flask, and when you come to reverse the flask the part that you pack in will be well surrounded.—*Dental Register.*

REPAIRING PORCELAIN FACINGS.

Gustavus North, Cedar Rapids, Iowa.

Where porcelain facings check or break in bridge or crown work, it is a difficult matter to remove the bridge or crown for repairing it, especially where Richmond crowns are used for anchorage.

By the following method porcelain facings can be replaced very satisfactorily without removing the bridge, or without giving any discomfort to the patient:

Select a facing of proper size and shade to replace the broken one, and drill holes through the gold backing for the pins of the facing; countersink the holes on both sides of the backing, prepare the facing to fit the backing properly, then cut the pins so that they are just a little longer than the thickness of the backing; split the pins of the new facing with a thin ribbon saw, half the distance of the thickness of the backing.

The facing is now ready to be fastened in place by using a little medium-setting alloy in the pinholes that come next to the porcelain; then press the facing firmly in place, holding it until the operation is completed. With a little hatchet-shaped instrument spread the split pins firmly, as in riveting, and then burnish the alloy in the pinholes. After the alloy has sufficiently hardened, grind the lingual surface down to the original form, and a very sightly and durable piece of work will be the result.—*Dental Cosmos.*

◆

CLEANING FILES.

V. P. Perisho, Streator, Ill.

When a vulcanite file becomes clogged with rubber and plaster, it may be easily cleaned by wrapping absorbent cotton around it, and saturate the cotton with chloroform. In about ten minutes it can be cleaned perfectly by the use of a stiff brush wheel on the lathe.—*Dental Review.*

◆

ECHAFOLTA.

A. C. Hewett, Chicago, Ill.

Echafolta is anti-venom, and if taken internally and applied at once to wounds caused by bites of venomous serpents, reptiles and insects, neutralizes the virus so that scarcely any swelling or inflammation follows the trauma. Every dental practitioner is daily using explorer, excavator and bur. Points, edges and blades are sharp and sometimes wound soft tissues near. Infection carried to such a trauma by careless operator or patient (often the latter), and a full-rigged "blood-poisoning" may sail in. Who but the dentist should "clear decks" for action? Echafolta, safe, *sure.—Dental Review.*

◆

TO TIGHTEN A RUBBER PLATE.

J. R. Kirkwood.

When a rubber plate has become loose, but where the occlusion and arrangement of the teeth is satisfactory, time may be saved and better results obtained by tightening the plate, than by resetting the teeth or making a new plate.

Some of the advantages of tightening are, saving of time to both dentist and patient, the taking of the impression is much less disagreeable, no uncertainty about the bite, and after tightening the patient finds the tightened plate more comfortable than a new one.

The plate is used instead of a tray in taking the impression, but before taking the impression burn away any undercuts that exist or cut away the overhanging part with a saw, then replace them and secure in place with wax. If the undercuts are not cut away the model is likely to be broken in separating. If it is desired to make the plate deeper on labial or buccal, build up that part with wax so that the impression plaster will be carried to place.

To take the impression use a small quantity of rather thin plaster spreading it well over, but not filling the plate, place in the mouth and have the patient close slowly while you guide the plate so that it articulates properly with the opposing teeth, then have the patient bite firmly, so that it goes properly to place. Let the plaster set thoroughly, then test bite by having patient open and close the mouth several times.

This method is applicable to either upper or lower places, full or partial cases.

If it is desired to tighten upper and lower at the same time, take impression of upper first, as described, and leaving it in place in the mouth, take the lower impression in the same manner.

After removing the impression from the mouth varnish it and pour the model in the usual way, then place plate on the bench, teeth down, and run some plaster from the sides of the model down over the buccal of the bicuspids and molars.

When the plaster has set trim model even with the labial of the plate, but leaving the bicuspids and molars covered by the plaster side pieces, which are later to serve as guides. Now break these guides from the model and lay them aside for the present. Be careful not to mar the surface of the model from which they were broken. Next remove any pieces of plate which were waxed in over undercuts and separate, removing all impression plaster from model and plate.

File buccal, labial and distal margins to a regular line and to a right angle, and scrape the palatal surface so that only fresh rubber shows.

If the plate were now placed on the model without the guides it would be impossible to place it correctly and obtain a correct bite, so take the two guides and place them on the models in the positions from which they were broken. Now place the plate between them so that the bicuspids and molars fit into the impressions on the guides, which will now rest exactly on the surfaces from which they were broken. If these steps have been carefully followed out the model is in exactly the same relation to the teeth and plate as it was before separation. Secure it in this position by waxing the model to the plate along the margins, then remove the guides and complete the waxing up.

Flask so that model is in lower half of flask and teeth and plate in the upper half with the line of separation following the wax.

When the plaster has set, place the flask in hot water to thoroughly soften wax, separate, boil out wax and vulcanize as usual.

In the case of gum section teeth it is best to trim buccal and labial margins of plate down to the sections.

In many cases the palate of the plate would be very heavy; this can be remedied by grinding away the old rubber when finishing the plate, or avoided by cutting out the palate to within a quarter of an inch of the teeth before waxing it to the model and waxing in a new plate.—The Odontoblast.

◆

TO TIP FACINGS WITH GOLD.

C. H. Van Deventer.

First use care in grinding the facing, reducing its length so as to allow for the gold tip when finished. The cutting edge should be beveled off at an angle of about 45 degrees, being careful not to leave a feather-edge of porcelain at the labial surface, as it will chip out when finishing. Proceed as in making any Richmond crown, until it is ready for the solder. Take a sharp-pointed instrument and carefully scrape away the investment from the cutting edge until all the surface of the gold backing is cleaned to the labial edge, holding the instrument at right angles to the facing. Take some crystal or sponge gold and pack it in the triangular space you have made. Put on a little borax, place the solder, and flow it as usual. This draws the solder down and leaves the cutting edge protected by a gold surface. If properly done, not enough gold will show to impinge upon the conscience of the most esthetic dentist.—Western Dental Journal.

AN AID IN THE REMOVAL OF DIFFICULT IMPRESSIONS.

R. C. Traynham.

If it be found difficult to remove an impression for a full upper denture, have the patient close the lips and blow with sufficient force to distend the cheeks, and the impression will drop down, no matter how tight it may have been.—Practical Dental Journal.

REPAIRING GOLD FILLINGS.

W. V.-B. Ames, Chicago.

My observations have led me to place a great deal of faith in amalgam used in the patching of gold fillings which have failed, either at the cervical margin or the usual proximal margin. There is a peculiar action between gold and amalgam that renders amalgam particularly useful as a patch alongside of gold, and I believe the same holds true of tin, and for the same reason there is a certain electro-chemical action between the base metals of the amalgams or the tin and the gold filling.—Dental Review.

OBJECTION TO IMMEDIATE ROOT-FILLING.

A. J. Cotterell, Knoxville, Tenn.

I do not believe that immediate filling of the root-canal should be attempted after removal of the pulp by pressure anesthesia, for the reason that the cocain not only anesthetizes the pulp, but a considerable area of the soft tissues at and adjacent to the apical foramen, so that, when filling the root. there is no way of determining when the end has been reached, by reason of these tissues being devoid of sensation. If the operator uses a method and has the skill to fill roots to the end, he will find, if he fills immediately, that he is more than likely to carry the root-filling into the soft tissue beyond the apical foramen, thus causing the patient much discomfort, and, perhaps, the loss of the tooth, from continued irritation.—Dental Brief.

FITTING GOLD TO THE WALLS AND MARGINS OF CAVITIES.

G. V. Black, Chicago.

To do this it is necessary that we wedge the gold between the gold previously condensed and the walls of the cavity. In every instance in laying gold against a margin, remember that it is impossible to fit gold perfectly against a wall by driving directly against that wall. It must be a lateral pressure against the gold previously condensed, in sufficient bulk to hold the last firmly. We may condense a very small amount of gold into an angle safely, but it is only into an angle that this can be done. The condensing should always be finished against the wall of the cavity by the wedging process.—Review.

◆

LOWER PARTIAL PLATES WITH WIRE CONNECTION.

F. E. Roach.

In the construction of a lower partial denture, I most heartily endorse the use of a wire connecting the two sides. I have been using this for years, and I find it the most satisfactory method of putting in partial plates I ever employed.—Dental Review.

◆

MOUNTING CARBORUNDUM STONES.

W. B. Dills.

I have had trouble heretofore in mounting carborundum stones, and when Dr. Taggart read his paper in January, he spoke of cementing the stones into mandrels. I have found that when a stone mounted in that way is wet it will drop off in the mouth. I happened to think of De Trey's low-fusing porcelain. You can fill the little cavity in the stones with the porcelain body, and when it fuses pass the mandrel into it. Dry it out over a Bunsen flame, having the mandrel in a pin-vise. By this means a stone can be mounted absolutely true, and will stand heat and moisture exceedingly well. You can throw it into ice-water while it is white hot without loosening it.—Cosmos.

TO CONTROL SALIVA.

H. Otis Logue.

An annoying operation to successfully perform is filling a lower third molar that can not, for half a minute at a time, be kept free from saliva. Such a case presented in a young lady, of highly nervous temperament, whose flow of saliva was excessive. Placing the dam was impracticable, and napkins placed in the mouth would almost immediately become saturated. This annoyance was overcome through the action of atrophin sulphate, a dose of which (1-120 grain) I had her take three-quarters of an hour before her next appointment. At that time I found the mouth very dry, though not uncomfortably so for the patient. This salt of atrophin has a much better effect on the secretion than the ordinary alkaloid. Its manifestations last from four to five hours.—Stomatologist.

◆

BURNISHING GOLD PLATE TO A TOOTH.

E. M. S. Fernandez, Chicago.

When burnishing a piece of gold plate to a lingual or other aspect of a tooth, a good practice is to place a piece of silk ribbon over the gold and carry the ribbon around the tooth so as to have both ends meet on the opposite side, and hold them firmly with the fingers, thereby holding the gold plate in place. Under this silk the gold may be burnished with very little trouble.—Dental Review.

◆

SECURING THE FRAGMENTS OF A LOWER FRACTURED DENTURE.

A. C. Willman, Kankakee, Ill.

It is often difficult to securely wax together a broken plate, especially a lower partial. If a strip of wax such as the dental depots use to attach a set of teeth to is softened and laid on a flat, unyielding surface—a piece of glass—the broken plate may be pressed, teeth down, into the wax, using both hands to hold the pieces in proper position.—Dental Review.

COMPILATIONS

COMPRESSED AIR, ITS USES IN DENTISTRY.*

By F. W. Linnert, D. D. S., Warrenton, Mo.

That we may come to some understanding just what compressed air is, I shall take the liberty to go into a few details, giving just a few brief points.

What is compressed air? As near as I understand it, it is free air confined to a smaller space than it exists under ordinary atmospheric pressure.

The theory of compression may be thus explained: Take an air-tight tube fitted with a piston and two check valves making a pump, for instance our ordinary bicycle pump; we all know what it looks like. One check valve is situated so, when piston is drawn up, it lets the free air pass into pump and closes when piston is brought to a stop, and upon bringing piston down the other valve is so situated to open, letting the air pass into tires, or if an air tank is used it passes into the tank, there stored away until ready for use.

Air, in compressing same, will generate heat, and cools upon expanding. High pressure and very low temperature will produce liquid air. Compressed air acts different from steam in many ways: steam will corrode any small leak, while air, if anything, will make its escape longer. It is much quicker than steam, and slightly cooler than normal atmosphere when quickly released, making it preferable for many pneumatic tools and machinery. I shall take the liberty of drifting from the subject proper, its uses as to dentistry, for this simple reason. Compressed air as a rule is not spoken of very freely by the public or profession in general, while a great many are more or less ignorant upon this great subject; it is because it is invisible, which for one reason dampers this important and useful gift of nature, which is free for all.

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*Read before the Alumni Association of the St. Louis Dental College.

Why I want to dwell upon other subjects first is because I want to bring out its uses in this great inventive age of ours, of mechanical devices, which prove to be successfully operated by their motive power, viz., compressed air. Compressed air up to but a few years ago was very little used for any purpose, but today we stand amazed and wonder how we ever got along without these numerous air devices.

Our fast trains, speeding almost at death rate, from 50 to 60 miles per hour from east to west and north to south, can come to a halt in a moment's notice simply by the moving of a small air valve, at will by the engineer, which will set all the brakes on the engine, tender and every coach, using the stored away compressed air in the air tanks on each side of the engine and underneath the front part of the boiler, being ever and constantly filled by the air pump working when the air pressure gets lower than the steam pressure in the boiler.

Right here in this progressive city of St. Louis we can at any moment see the use of compressed air on all street cars. Going back 25 years ago, when I first visited this city, having a red handkerchief around my neck for an ornament, I found the small mule car with the famous Missouri mule going at the rate of about 5 miles per hour and braked by the driver. Now the famous mule has passed away since the electricity has taken his place and the old hand brakes are in the scrap pile, only to be remelted and molded into a modern air brake, receiving its working power from the tanks into which the air is compressed to about 300 or 400 pounds to the square inch, to be used at will by the motorman to set the brakes, and as you all know, at times have the occupants of the car, especially those standing, move to the front without the word "please" from the conductor.

One or two more devices I shall touch upon briefly, and then to the dentistry. We have the pneumatic riveting hammer for riveting boilers and other riveting, striking about 2,000 licks per minute; with this device I will mention the most important use where it is used now, where in the past it was almost impossible to use the hand hammer. It is in mending ships under water; here using the hand hammer to strike a lick is almost out of the question; still it was done until the compressed air took its place.

Another device is the rotary drill motor, used in drilling wood, iron, and in the mines; compressed air being cool makes the handling of this kind of tools very desirable. I presume many of you can recall the building of the World's fair, in our city, in 1904. Perhaps you have noticed the men working on steel structures drilling and riveting, having a small motor hooked to their belts; to the motor was connected a rubber hose which was connected with the compressed-air station supplying a large number of these small motors. Yes, even our modern way of house-cleaning is with compressed air, so we can sight to many useful ways in which compressed air may be used, and only a question of time will bring out many more useful devices.

USES IN DENTISTRY.

Now, let's see its uses in dentistry, which are many. I shall give pressure as the most desirable, ranging from 20 to 30 pounds. This amount of pressure gives a good, strong stream of air, and not too strong. Have a fairly long nozzle, about 6 inches is long enough, having a small hole and reinforced at opening, so when a hot blast is required it may be heated and retain its heat for a few moments; next have a good air valve. The best is (giving name), working on the same principle as our common gas cut-off; being tapered, it will always remain tight; then last, but not least, have a large air tank, the larger the better; however, a small one will do by pumping oftener. The following are its uses:

First. In making an examination, in locating cavities, you can use it in blowing out any substance that may hide in any small cavity, and if your mirror fogs simply blow a little air on same, and in an instant it is clear again, and you may continue your examinations.

Second. In drying cavities, use warm air and carefully control the flow of air and you will soon appreciate its usefulness in this operation.

Third. In treating putrescent teeth you will find it more effective than anything you have or can do. We all know what it means when a patient comes in saying, "Doctor, my tooth is an inch or a foot," or some even get it so enlarged that they make it a yard longer than the rest, "and hot hurts it," etc. When opening this tooth a fragrant odor greets us, announcing the death of the pulp; here, with your hot compressed-air blasts, after removing as much of the putrescent matter as possible and having flooded cavity with alcohol, you thoroughly dry this tooth, each root up to its apex, and success is certainly yours 99 times out of 100 cases.

Fourth. In crown-setting, to dry the tooth to be crowned, which should be thoroughly dry, and be done instantly with a good, heavy stream of air.

Fifth. In bridge-setting, drying the abutments, its use is far surpassed from the old hand-bulb air syringe.

Sixth. In sensitive dentine, after applying your carbolic acid or other remedies, such as chloroform, ether and menthol, or whatsoever you may use, into the cavity to be excavated on a pledget of cotton you can evaporate these densensitisers by a continual warm stream of air and will find results most favorable; a trial will convince you.

Seventh. In taking an impression when the patient is easily gagged, herein using a 1 per cent. solution cocain in an atomizer and thoroughly spraying the palate, you will find it favorable.

Eighth. In drying cement fillings and polishing gold fillings with a rapidly moving disk, you will generate heat; here compressed air, a steady stream, will save time as well as pain to the patient.

Ninth. Inlay work, when absolute dryness is required until cement is thoroughly set, compressed air will save you at least one-third of your time, for you can dry the cement with a constant blast from your nozzle, so that not even the dampness from the breath will have any effect.

Tenth. In your laboratory you will find compressed air a good companion in using your blowpipe. Set aside your bellows, be steady and get a steady flame and be at ease yourself, having no bellows on which to pump around on. With these few remarks I shall bring this subject to a close; having gone over it as briefly as possible—perhaps too much so. If so, I am ever ready to give any information desired and will gladly demonstrate its uses to any one.

I only hope that each and every one will give this subject a thorough investigation, and I am sure if used once by anyone of our noble profession it will never be discontinued, for it is certainly a thorough dryer and a time-saver, which means success to the very busy dentist and dollars in his pocket, for time is money.—Dental Era.

SOCIETY

OHIO STATE DENTAL SOCIETY.

The forty-second annual meeting of the Ohio State Dental Society will be held in the assembly rooms of the Great Southern hotel, Columbus, December 3, 4 and 5, 1907.

An excellent program of papers, clinics and exhibits has been prepared.

The educational features of such a gathering can be appreciated only by those who are in regular attendance at this and other leading societies, and every ethical dentist of the state should come, and, if not already a member, should join.

Should you wish to stop at the Great Southern hotel, it would be well to have your rooms reserved in advance, as there are never accommodations for all; however, other first-class hotels are in the immediate vicinity.

Mark the dates off now and come on the first day and remain through the entire session. F. R. CHAPMAN, Sec'y.

OHIO STATE BOARD OF DENTAL EXAMINERS.

The regular semi-annual meeting of the Board of Dental Examiners of the State of Ohio will be held in Columbus, November 26, 27 and 28, 1907.

Only graduates are eligible to examination.

Application, accompanied by fee, $20, should be filed with the secretary by November 16th. For further information address

H. C. BROWN, Sec'y,
185 E. State St., Columbus, O.

EXPRESSION OF REGRET—DR. W. D. MILLER.

Whereas our honored and beloved fellow-member, Dr. Willoughby Dayton Miller has been suddenly removed by death, the officers and executive committee of the American Dental Society of Europ desire immediately to express to his afflicted family and to the dental profession the sympathy and the deep sense of personal bereavement which every member of our society feels in this irremediable loss.

K. A. DAVENPORT, Pres.
J. W. GALE, Sec'y.

NEW JERSEY STATE BOARD OF REGISTRATION AND EXAMINATION.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination beginning Monday, December 9th, and continue through the 10th and 11th. Practical operating and practical prosthetic work will begin 8 a. m., Monday, December 9th. Photograph and preliminary credentials must accompany the application. Meeting held in the State House, Trenton, N. J.

For full information address the secretary,

CHARLES A. MEEKER, D. D. S.,
29 Fulton St. Newark, N. J.

THE NEW HAMPSHIRE BOARD OF REGISTRATION.

The New Hampshire Board of Registration in Dentistry will hold its next meeting for examination, December 3-5, 1907, at Masonic Banquet Hall, Manchester, N. H.

A. J. SAWYER, D. D. S., Sec'y.

AFTERMATH

Marriage.—Dr. Frank H. Paul, Erie, Pa., and Miss Margaret Schusler, of Pittsburg, Sept. 9.

Loss by Fire in the dental office of C. R. Vilas, Skowhegan, Me., Sept. 3, estimated at $500; fully insured.

Free Dental Operations.—Nearly 300 free dental operations were performed on 79 patients at the Rochester Dental Society dispensary, in August.

Ohio State Dental Society.—Next annual meeting at Great Southern hotel, Columbus, December 3, 4, 5, 1907. All ethical practitioners urged to attend.

Texas State Dental Board.—The governor has appointed the following board of dental examiners: J. H. Grant, Palestine; Sam G. Duff, Greenville, and C. M. McCauley, Merkel, Taylor county.

Ohio Dentists should arrange to attend the Ohio State Dental Society meeting in Columbus, O., Dec. 3, 4, 5. The meeting will be a profitable one; good papers, good clinics, good exhibits. The Great Southern hotel is the headquarters.

Northern Iowa Dental Society.—Officers elected were: President, C. N. Booth, Cedar Rapids; vice-president and superintendent of clinics, H. P. White, Sioux City; secretary, J. W. Kelley, Mason City; treasurer, W. G. Crandall, Spencer.

Died in Dentist's Chair.—Edward Doyle, aged 31 years, of Pittsburg, Pa., died Sept. 17, while under the influence of an anesthetic, given before an operation for necrosis of the jaw, supposed to have been caused by the extraction of a tooth several months ago.

Deaths.—Sampson W. Harris, Jr., Carrollton, Ga., Sept. 4, aged 34 years, of apoplexy. Marshall B. Ayres, Dubuque, Ia., Sept. 8, aged 36 years. H. A. Irwin, New Concord, O., Sept. 10, aged 60 years, of Bright's disease. John W. Fielder, Fall River, Mass., Sept. 12, aged 44 years.

Burglaries.—Dr. W. G. Bronson, Binghamton, N. Y., $30 worth of gold-foil. Dr. B. O. Chapman, Elmira, N. Y., $300 worth of gold plate and supplies. Dr. Henry Peterson, Elmira, articles valued at $50. Drs. W. A. and S. P. Spencer, Carbondale, Pa., loss $200.

Painfully Injured.—Explosion of an incandescent globe while he was trying to discover why his electric lights had failed to burn clearly is reported to have nearly blinded Dr. A. L. Westcott, Atlantic City. Both eyes were filled with tiny particles of glass, but physicians hope to save the sight.

Dentistry in the English Army.—The relation of good teeth to good health is emphasized by a recent action in the English army whereby bad teeth shall not be a bar to re-enlistment. Hereafter the soldiers will be compelled by a military rule to march to the dentist periodically. England has found that she cannot afford to lose good soldiers because of bad teeth. She will insist upon regular use of brush and pick and will pay the dentists' bills.

Dentistry on Ocean Liner.—Filling teeth at sea is a new industry introduced on the French Line steamer La Savoie, during a recent trip, by an enterprising Frenchman. The dentist did not advertise, but he let it be known that he was willing to do the work, and before the ship was one day out he had many patients. The dentist kept his identity secret, and said if he could be as successful on his way home a month hence he would have more than paid the expenses of his trip to the United States.

A Drastic Measure.—A law went into effect in New York state September 1 which forbids the sale of cocaine or any of its admixtures, except upon the written prescription of a reputable physician, and that prescription may be filled only once. Wholesalers may supply the drug only to licensed pharmacists or druggists, registered practicing physicians or dentists, and veterinaries. And all packages must be labeled "poison," and on that label the name and quantity of the cocaine or its salts must be distinctly described. Violations of this law bear the penalties of imprisonment for not more than a year, or fine of not more than $1,000, or both.

Connecticut Dental Commission.—The new state dental commission has organized as follows: Dr. Fred W. Brown, of New Haven. who was appointed for a term of five years; Dr. Gilbert M. Griswold, of Hartford, for a term of five years; Dr. H. G. Provost, of Winsted, three years; Dr. D. Everett Taylor, of Willimantic, for two years, and Dr. A. B. Johnson, of New Britain, for one year. Dr. Provost was elected president, and Dr. Griswold, who has held the office of recorder for the past two years, was reappointed. The semi-annual examination of candidates for license to practice dentistry will be held on November 7, 8 and 9. It was voted that oral hygienic and dental prophylaxis be added to the list of subjects upon which candidates will be examined. The new section 12 of the dental law requires all unlicensed assistants who are performing independent dental operations on or before January 1, 1907, to register with the recorder on or before October 1. The age to be required of candidates for registration was considered and will probably be fixed at not under 21 years, the same as required of candidates for license. This matter will be referred to the attorney-general.

Opportunity for Well-Equipped American Practitioners in Symrna.—To meet the several inquiries made of Consul E. L. Harris regarding opportunities for American dentists in Smyrna, he submits the following report: "Up to a comparatively recent date the art of dentistry was practically unknown in the Levant. Extraction was the sole remedy for a toothache, and barbers were generally the only operators. At present the number of dentists in Smyrna is very large, although but few of them have had a scientific training. There are two graduates of the Philadelphia Dental College and three who have been through a course of study in Europe. These dentists have a good practice and are doing well. Their prices range, for a gold filling, between $4 and $4.50, and average $2 for cement fillings. Dental supplies, especially artificial teeth, are purchased almost exclusively from England, although many specialties are of American origin. In values these imports amount on an average to $50,000 per annum. The reason for this indirect trade is that London houses have secured from American manufacturers the exclusive right of the sale of their products throughout the Continent. These houses have branches in all principal centers from where traveling men are sent out with stocks of supplies to the tributary towns. Such a branch exists at Constantinople. A representative passes through Smyrna twice a year and spends five or six days visiting local dentists and providing them with the necessary supplies. Credit terms are allowed to responsible parties. American dentists have occasionally made short stays in Smyrna and have found it very profitable in spite of the improvised nature of their installations. Taking into consideration the high reputation that is attached to American dentists, and also the fact that the number of people who take regular care of their teeth is continually increasing, an American practitioner would find a stay of a few years in Smyrna a paying undertaking. The cost of living here is rather low, and for about $35 per month attractive quarters could be secured in a central locality. It must be borne in mind that the furniture of the rooms should be very tasty, and that the mechanical outfit should be complete. Rival local dentists are well-equipped in this respect.

Action of Tobacco Upon the Teeth. After smoking a Havana cigar, I made cultures of my own saliva, and found it had the effect of retarding the growth of bacteria more than had any of the mouthwashes I have experimented with. I took the culture just before the cigar, and then repeated every five minutes for one-half hour after smoking. I am of the opinion that if smokers kept their teeth clear—that is to say, free from foul deposits—and allowed the smoke to percolate around them, they would, on an average, have much better teeth than have the non-smokers. —F. M. Wells, Dominion Dental Journal.

To Educate the Laity.—The Livingston County (N. Y.) Dental club of 10 members is in line for more than the usual society honors. Its meetings are announced as quarterly; its object to promote among the people through the medium of the public schools and press a better knowledge of the care of the oral cavity and the preservation of the teeth. Dr. J. W. Cowan, Geneseo, is president; Dr. G. T. Moore, Mt. Morris, secretary-treasurer.

Recent Patents of Interest to Dentists.—

864054—Toothbrush, Albert Abrams, San Francisco, Cal.

863896—Receptacle for toothpicks, Richard Beckmann, Charlottenburg, Ger.

864465—Dental filling, John Hood, Boston, Mass.

864569—Dental plugger, George H. Shannon, Cambridge, N. Y.

865112—Contouring gold tooth-crowns, Francis La Chapelle, San Francisco, Cal.

865823—Apparatus for the making of molds for the casting of dental fillings and the like, Wm. H. Taggart, Chicago, Ill.

865733—Dental clamp, Henry B. Weagant, Owen Sound, Ont., Canada.

866176—Artificial denture, Francis Ainsworth, St. John's, N. B., Canada.

866559—Dental plate punch, Edward E. Bartram, Los Angeles, Cal.

866518—Drilling apparatus for dentists, Paul Repsold, Riga, Russia.

866304—Removable artificial denture, Finis E. Roach, Chicago, Ill.

866305—Fusible porcelain cement and strengthening backing for artificial dentures, Finis E. Roach, Chicago, Ill.

Copies of above patents may be obtained for 15 cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

REGULAR CONTRIBUTIONS

GOLD AND PORCELAIN INLAYS.*

By D. O. M. Le Cron, D. D. S., St. Louis, Mo.

The unusual interest the profession manifests in this branch of dental art is obvious, from the fact of the great mass of literature on this subject in the journals the last few years from the pens of many of the best practitioners. Few issues but that have something devoted to inlay work, and may say every phase of the subject has been expounded by able writers. The inlay principle is recognized by its worth by many of our most proficient operators, and has secured for itself a conspicuous place in dentistry. The literature on this subject is so abundant that I feel but little now remains to be presented and will simply review and reiterate much that I have presented before. In inlay work, each operation presents, in some degree, different requirements, and creditable results are only to be obtained by a proper appreciation of the importance of continually keeping in mind all the various factors which enter into the particular case, and so directing our efforts that our artistic sense will have the freest play possible consistent with the mechanical principles involved. In determining the case we must first consider the location, for the gold and porcelain inlay each has its distinct field; porcelain for the anterior teeth and buccal cavities also on occlusal surfaces when sufficient porcelain can be applied to assure bulk to withstand the force of mastication. Unquestionably it is the most artistic filling, and its utility cannot be questioned if constructed on

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*Read before the Nebraska State Dental Society, June, 1907.

The editor and publishers are not responsible for the views expressed by authors in the reading matter published by THE DENTAL SUMMARY.

mechanical principles. In the greater percentage of cavities posterior to the cuspids, the gold inlay is far superior, in my estimation, to fillings of any other character. It is indestructible and has more strength than any other filling material if perfectly constructed. I assure you that recurrence of caries never appears, consequently the chances of permanency are greater than in any other process that could be used. Another great advantage: many teeth that formerly indicated crowns can be restored with gold or porcelain inlays and made to render good service for many years. Also strong artistic anchorages for bridges by the inlay method can be produced with most gratifying results. The 16 years that I have been experimenting with gold and porcelain inlays convince me that the field for this class of work is almost unlimited in the hands of skillful manipulators.

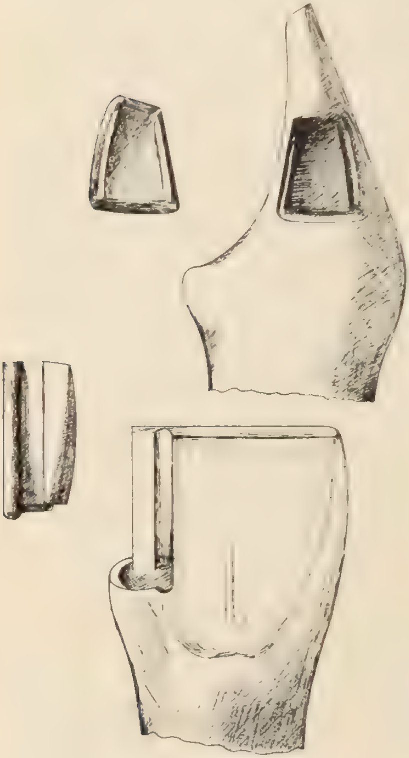

Fig. 1

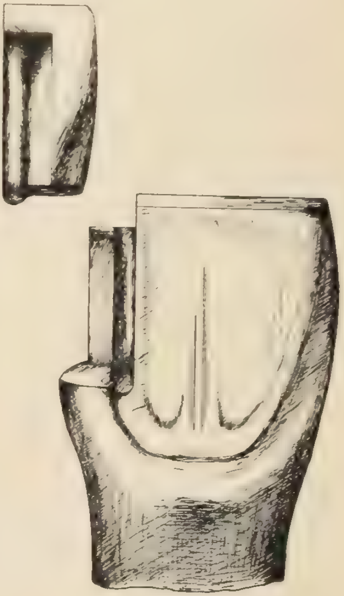

Fig. 2

CAVITY PREPARATION FOR INLAYS.

To be successful in this branch of dentistry, the first important step is a most comprehensive idea of cavity preparation, and to do this necessitates a most exacting and systematic work.

Sufficient anchorage must be made to withstand the force of mastication and provide firm retention of the inlay within the cavity. When occlusal stress is to be resisted the cavity should be so shaped that the force will drive the inlay against tooth structure with a definite idea for the retention of the inlay. It should be formed at sharp angles with a flat floor at nearly right angles to the walls.

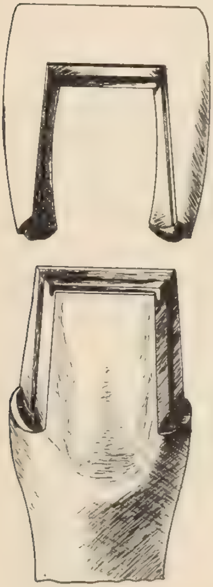
Fig. 3

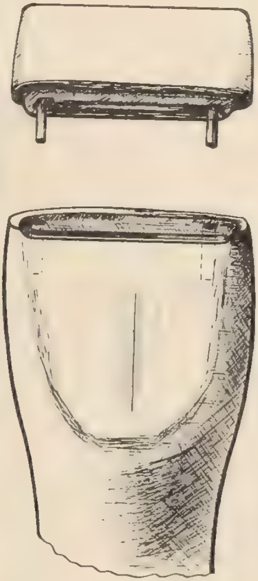
Fig. 4

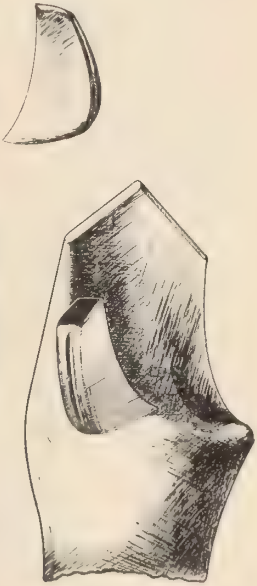
Fig. 5

Always keep in mind at the point of stress that we must make the resistance and retentive form so that the greatest retention is at that point.

Cavity preparations for gold and porcelain inlays are formed nearly on the same principle as to shape and retention.

With porcelain, it must always be remembered that on occlusal surfaces we must have bulk sufficient to withstand the force of mastication and the cavity extended to a point down the incline to avoid sharp edges on said surfaces on account of the friability of the material.

The cavity for the gold inlay. The margins should be very slightly beveled; with porcelain inlay, the cavity margins must be sharp and well defined.

It is difficult for many to conceive the idea of cavity preparation by words of explanation, and to give you a more intelligent conception and method of formation of same, I have drawings that fairly represent my idea and also have models carved out of plaster of paris that I will illustrate in my clinic:

No. 1. This cut represents a right central incisor, with the incisal angle involved on the distal side and small mesio-labial cavity. You will note the lingual wall is cut quite in excess of the labial wall to form the gingival seat and a groove extending from the floor to the incisal edge on the labial wall; also the groove extending on the floor of the cavity lingually for retention.

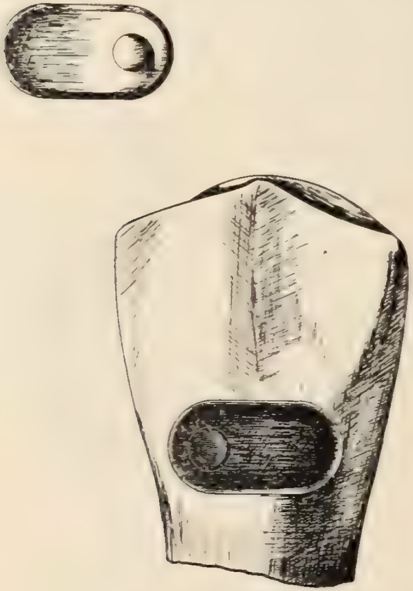

Fig. 6

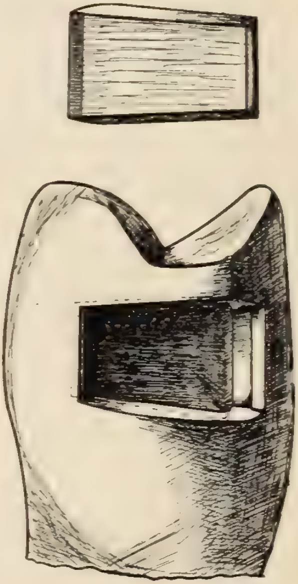

Fig. 7

The margins have been extended for retention and access, and the form of the cavity is made on straight lines and angles, with a flat base for its seat. To dislodge the inlay, it must be lifted from its seat. Direct or lateral force that it receives from the occluding teeth drives it more securely into place.

The small mesio-labial cavity not subject to occlusal stress is formed with walls almost at right angles and with flat floor, also as deep-seated as is consistent for its retention.

No. 2. Left central—represents a tooth with a thin or sharp incisal edge. The cavity is formed with a step by cutting away the incisal margin, and formed as described in Fig. 1.

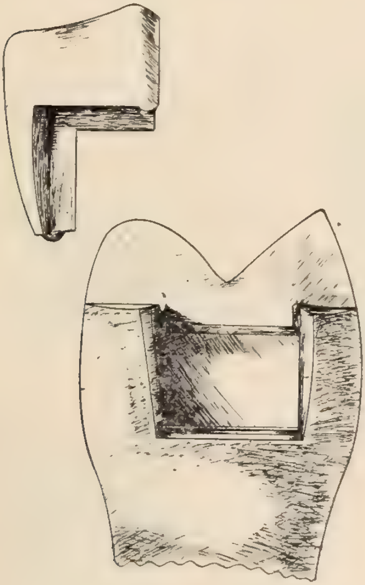

Fig. 8

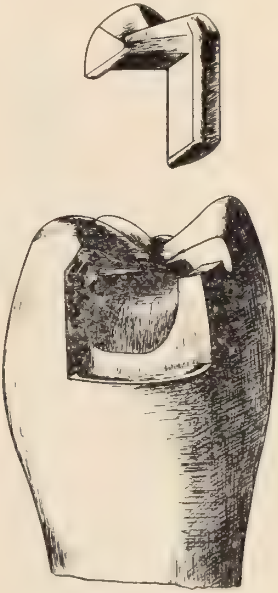

Fig. 9

No. 3. Right lateral—with mesial and distal surface involved extending to incisal edge. This necessitates grinding away the incisal edge and forming the same that it will be so shaped to include all surfaces, making one continuous cavity. It will be noticed that the gingival seats are flat, the walls are inclined both mesially and distally, so that the matrix may readily be removed. Also the lingual wall is cut in excess of the labial, and so shaped that occlusal stress will force the inlay against tooth structure.

No. 4. Left lateral—with incisal end broken off, necessitating full incisal restoration. The end is ground off to a right angle, with the labial surface and the lingual side cut away, forming a mortise, and with the aid of the two pins parallel to each other near the margin of the mesial and distal sides we have ample retention.

No. 5. Left cuspid—cavity on mesial surface, extending to mesio-lingual angle. In this cavity lateral stress must be overcome in shaping the cavity. This is done by cutting away the lingual wall, forming an obtuse angle lingually from the seat formed against the labial wall and cutting two grooves extending from the base of the cavity to the lingual surface.

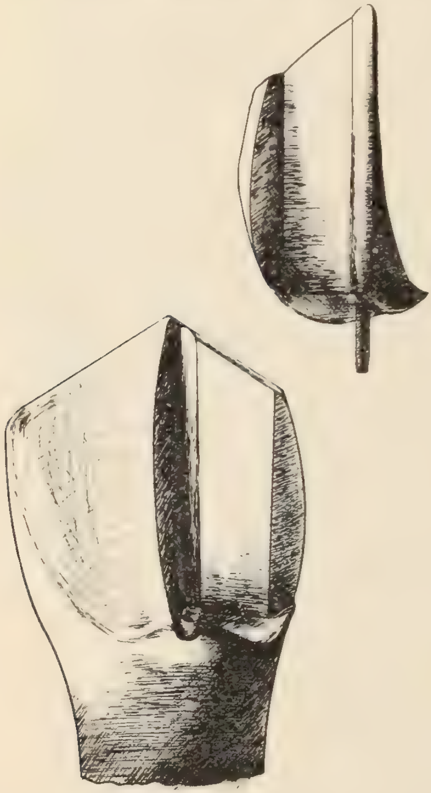

Fig 10

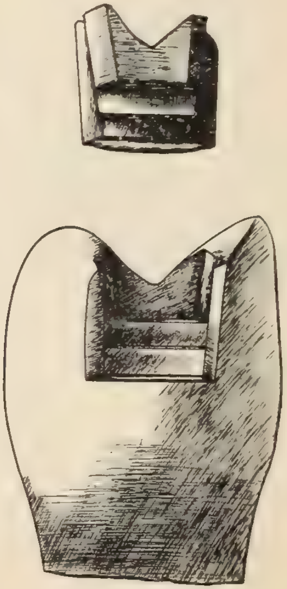

Fig. 11

No. 6. Bicuspid — ordinary cavity on buccal surface, extending to or beyond the gingival line. This class of cavities is quite common, and generally indicates a porcelain inlay. As a rule, they are of an oblong shape, and many of the cavities can be shaped to advantage with such regular outlines that it is difficult to determine the correct position it should take when setting the same. To overcome this, at some place on the seat of the cavity an indentation should be made as a guide, as will be noticed in the cavity of the model. The cavity is formed as usual with a flat base, its walls as near parallel as possible to remove the matrix and as deep-seated as is necessary for its retention.

No. 7. Bicuspid—mesial cavity, extending to buccal margin, but not involving the occlusal surface. The mesio-buccal wall is cut away sufficiently for access after separation and formed at almost right-angles to the floor with the opening on the buccal walls wide enough to remove the impression or matrix. Small grooves can be cut for the better retention on the lingual and buccal sides. Frequently the decay extends quite to the center of the tooth structure, but does not involve the occlusal surface. This model represents that part cut away after the inlay is completed and filled in with cement. So to speak, we may style this a box cavity.

No. 8. Bicuspid—with mesial and occlusal surfaces quite impaired. In this model we will illustrate the necessity of extension for porcelain in posterior teeth. Always remember, the summit or cusp must be crossed and the incline reached to such a point that the edge of the inlay is formed well down the incline on account of the friable edge, and that a certain amount of porcelain must be used in bulk to withstand the force of mastication.

The cavity is formed by steps representing its base and grooves extending lingually and to the buccal surface for retention.

No 9. Molar—represents a mesio-bucco-occlusal cavity The mesio-buccal cusp is cut down sufficiently to insure strength to the inlay and the mesial wall cut away, forming a flat seat at the gingival line, and cut on an incline under the lingual cusp. A groove is made on the lingual wall, also one on the posterior part of the step, extending to the buccal surface, to insure retention. If decay should extend beyond the lines represented in model, cut out and fill in with cement as above stated in Model No. 7.

No. 10. Right cuspid—This model represents a gold inlay for an abutment for bridge attachment. In forming cavities for the abutments we follow the lines laid down in cavity preparation for inlay work, with the seat flat, the walls absolutely parallel, with a view to retention and sufficient depth in order to get the greatest strength for the attachment. In preparing the cavity the lingual portion of the tooth will be cut away sufficiently for a post of iridio-platinum wire to enter the root-canal, and the cervical wall should extend to or under the gum margin. The labial wall must be parallel with the post, or rather slope from canal to the incisive edge to insure its removal. A groove with a fissure bur is cut from root-canal on base of cavity, extending to lingual margin, also on labial wall from base to incisal edge for retention. The formation of the cavity must be such that the inlay or abutment will not be misplaced by the force of mastication.

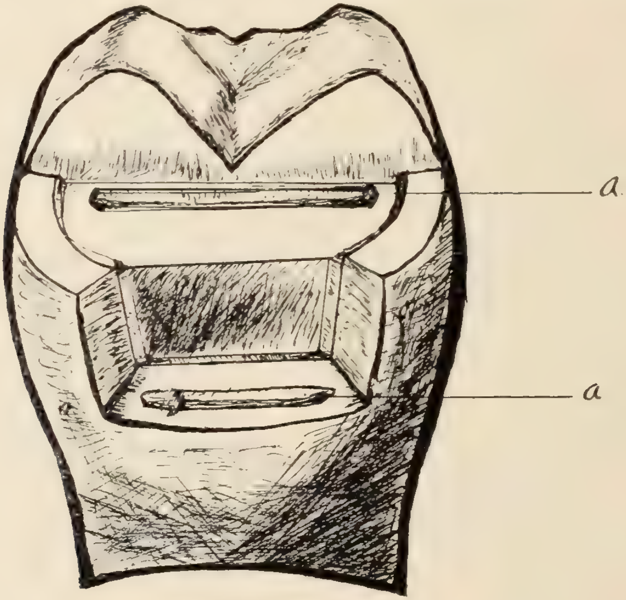

Fig. 12
a-a Grooves for retention

No. 11. Bicuspid—representing a gold inlay for an abutment. This cavity should be extended lingually, also well to the buccal surface in all cases, to get the required surface for the attachment of the dummy. The retention can be made by ingeniously forming a dove-tail, as the case may present. Cavities do not come to us prepared, so we are obliged to form them according as our own judgment dictates.

No. 12. Molar—This model represents a cavity formed for an inlay abutment also. It is made step-shaped on mesial side, with occlusal surface cut down at right-angles, with the mesial walls also counter-sunk, and with a groove at a suitable point, so that the inlay or abutment when completed will have a tenon, as it were, to enter the mortise or groove, making good retention.

IMPORTANCE OF RETENTION.

Let me impress on you the importance of retention for final success in inlay work. Ever keep in mind that the inlay must be retained by the mechanical relation of the same to the tooth, and to accomplish the end will require close study and observation to the amount of force and the direction the inlay will be subjected to.

Adapting the matrix to the cavity and the technique of applying the porcelain and the process of baking the inlay, I will not take up your time in giving a description of the same as the clinicians here will demonstrate the methods more satisfactorily than pen can picture.

CASTING GOLD INLAYS IN PLATINUM MATRIX.

One year ago I commenced an experiment in casting gold inlays in a platinum matrix, and the final result is a most perfect inlay that has given great satisfaction to my patients and myself. Will give a brief description of the method and more fully demonstrating the same in my clinic with the models I have prepared to illustrate the opening the bite with inlays.

Prepare the cavity without undercuts, with flat seat and walls as near parallel consistent to draw matrix without warping, with margins slightly beveled. Extend the cavity, as case in hand indicates, for mechanical retention, and determine upon the removal of the matrix in a certain direction, and cut the walls of the cavity accordingly.

Forming the Matrix. Many advocate burnishing direct in the cavity. I can get far better results by taking a sharp impression with modeling compound and packing the same with copper amalgam. When sufficiently hard the .001 thickness of platinum matrix can most readily be adjusted with damp cotton and burnisher to the walls and over the margin of the cavity, and with Ash's water-bag swager, the matrix is accurately adapted to all parts of the cavity, and then the matrix can readily be trimmed roughly to the outlines. To prevent matrix from tearing, work it gently to the floor of cavity with a suitable soft piece of wood and adapt roughly to same. Don't pay any attention to the creases or folds it causes to the matrix; the damp cotton and the burnisher will care for them later.

When suitably formed on the amalgam die it is carried to the mouth for final burnishing and perfect adjustment to the cavity.

Satisfied that the matrix is adapted to all parts perfectly, fill in with wax, and if occlusion is necessary, instruct the patient to close the teeth, and with a suitable instrument carve the wax to the desired form of contour and shape that we wish the inlay to present when complete. Remove matrix with wax and invest the same just to the edges of the metal to secure it from warping in handling, and set aside till sufficiently hard so that it can be handled.

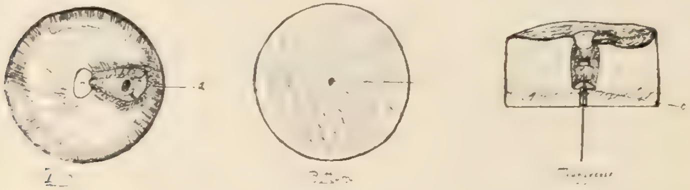

Fig. 13
a—Groove for gold pellet. b—Opening in bottom of investment. c—Straw or pin during investment

With .002 thickness of platinum foil, we adapt to wax with warm burnishers (if the inlay indicates it), leaving a small opening at contact point of adjoining tooth to cast the gold into. If the cavity is deep and narrow, in many cases it will have to have a vent for the metal to pass to the extreme end of the concavity. This can be done by puncturing a small hole in matrix at the end opposite to the gate or opening and inserting a piece of broom-straw through the hole into wax. Firing the same after investment, the straw will burn out, leaving a small air vent. The whole is now invested in as small an amount of good investment material as is consistent to hold it secure and so formed that at the opening it will present a concave shape and gate that the molten gold may lead into the matrix.

The wax is boiled out by holding the investment with large tweezers and pouring boiling water into gateway of investment.

CASTING THE INLAY.

Pure gold is placed in the depression near the gate and the investment gradually heated from the underside and around until the whole is at a temperature, or nearly so, that the gold will fuse. The flame is directed on the pellet of gold fusing the mass most thoroughly, causing it to liquefy and roll into the matrix. By placing small pellets and fusing them in this way till cavity of matrix is closed or full, it is not necessary always to have a vent—only in cases mentioned above, as the gold will spread and most thoroughly adapt itself to all parts of the platinum matrix. The two metals seem to have an affinity for each other, as it were.

The soldering problem is a great ordeal to many of the profession, and few seem to realize that sufficient heat well distributed is necessary. Success in casting or soldering depends on all parts being clean and the heat equally distributed under and around investment sufficiently to cause the metal to flow.

If proper care is used in manipulation of matrix, carving wax to perfect occlusion and contour, and adapting this platinum to the wax surface as carved, the inlay when cast will require only cutting the thickness of the platinum on the occlusal and contour surfaces when placed in the cavity. The inlay is set under pressure as usual and polished down to the tooth structure as we should a gold filling.

In closing, I venture to say that porcelain or gold inlays, when honestly and artistically constructed, are a credit to the skilful practitioner and a comfort to the patient.

Many hesitate to make the start on account of the manipulation being so different from that of other operations and that it requires a development of skill that I dare say too many of the profession have an aversion to acquiring. They are satisfied with the ease with which plastic filling materials are introduced that require no skill and lead to most careless manipulation. We should all endeavor to develop our manipulative skill, together with the artistic perception that it will add to our professional calling. Remember the motto of Morris: "Not how cheap, but how good;" and that Emerson said: "If a man shall do a piece of work incomparably better than his fellows, the world will make a pathway to his door, though he live in a forest."

DISCUSSION.

Dr. Van Slyke: On account of not seeing Dr. Le Cron's paper or his work until this morning, I did not know whether I was going to agree with the doctor or not; but I am happy to say that, with a few exceptions, I indorse the doctor's preparations and his inlay work. His preparation on the cuspid of the abutment for a bridge I don't like as well as if he had ground the whole lingual surface of the cuspid and inserted a pin for the attachment. It gives much more strength than he could possibly get by cutting in one side. (Exhibits chart No. 10, used by Dr. Le Cron). This is the case I mentioned. I always grind back here on the cuspid and form an inlay over the whole lingual surface, and then insert a pin in that way. I think we get a great deal more retention, and it is less liable to fracture than we would get where we cut so deep on one side. There are one or two changes I would make in the preparations of some others, but they are very slight. The doctor's method of making a cast inlay was brand new to me, and I think it is a very smooth thing, and from now on, where I want to make a gold inlay for a bicuspid or a molar, I will undoubtedly use Dr. Le Cron's method for a cast inlay; but I don't expect to give up my hollow inlay for large molar fillings. I did not see any of his porcelain manipulation, so I can not say anything about that, but his cavity preparation is along the same lines that we all seem to be working on. It is my opinion that the next few years the inlays are going to be a whole lot more popular than they are today, for the reason, it seems to me, that no tooth can be so properly filled as with an inlay. No material that you can place in the tooth makes a perfect union between the filling and the tooth like an inlay where a soft cement is placed in the cavity and the inlay seated under pressure; you have an absolutely sealed cavity and a connection of the filling to the tooth which you have not by any other method. Where a filling is fastened with undercuts, and so on, we depend altogether on the undercuts to hold it in—no adhesion whatever. I think that the reason inlays today—porcelain especially—are not a success is not a fault of the material, but of the operator. It may be through being too busy to take it up right or it may be through being a little prejudiced, or it may be that a man has been in practice 15 or 20 years, and he does everything in dentistry, as he thinks, to perfection. He sees some man demonstrate a porcelain inlay, and some fellow from a supply house hands him a package for $35 or $40; he takes it home and he makes a porcelain inlay. Well, he misses the color, and he misses the fit, and maybe, in a year or two, he will miss the patient. But if that same man stops he will realize that when he started to make gold fillings, or even amalgam fillings, they were not a success. It is my opinion that the poorest inlay a man can make would be a whole lot better filling than any other poor filling, and I really believe that any skillful operator who is skillful with other materials would make a skillful inlay worker, either gold or porcelain. A sloppy operator who seldom uses a matrix in putting in an amalgam filling certainly would not make a good inlay, either porcelain or gold. There is one thing I must say in favor of the inlay: We can get a perfect contour, better contact points, than you can with any other filling material without an awfully good separation. I see a lot of Omaha Gold Study Club fellows here, and I have got to look out, but if more operators would take up the gold inlay for badly broken-down molars and quit making these fine-fitting gold crowns, these that fit fine on the outside—not around under the gum—they would save more teeth and the people in general would have a better opinion of us as dentists. I don't think there is anything as liable to cause irritation of the gums as a gold crown—an ordinary gold crown. Of course, once in a while we can, all of us, make a nice fit on a gold crown, but the same man that makes a good fit on a gold crown ordinarily would save the same tooth a whole lot better with a nice gold inlay. Of course, it might be that patients would not think they got quite as much gold for the money, but if you weigh it up I believe they would have a little more, especially if they made cast inlays as the doctor demonstrated here today. It is what is the best for the people we want to consider. One thing the doctor said in closing was, "It is not how much a thing costs or what you got for doing it, but how good is it?" That is the main thing. I am happy to say that every day I try to do a piece of work just a little better than I did the last, and I expect to keep right on. It seems to me as we see work that is being done by some operators in a careless, haphazard way that the more stress we can lay on better contact points, better contour, and better fillings in every respect, the better it is going to be for all of us.

Dr. R. J. Walker, Lincoln, Neb.: Operators familiar with the possibilities of careful, thoughtful amalgam preparation and manipulation for crown-filling, inlay-filling with cavity or post-retention, margins extended for prevention or protection, can but question the true value of the gold inlay in posterior teeth. Still, with all teeth and all other filling materials in the mouths of careless patients, tobacco tog, rail and other metal biters, or fillings left a trifle high, we are compelled to overlook many faults and welcome the one security—its never-varying edge strength; the color as an excuse. Why? Must we teach ourselves and patients that gold is the only proper thing to use? Should we not advocate amalgam and receive five or ten dollars, if not a proportionally larger amount for a restoration with it, when its actual value to our patients is many times greater? They depending on our honor and ability are usually persuaded to accept the aristocracy of the gold because they will pay for it, and we have a higher opinion of ourselves while working it, even if we don't "need the money".

The greatest injury of the single crown is admitted to be that to the gum by the band, and while this is the same or greater, if attached to the bridge, in bridge-work, it fades into insignificance compared with injuries to the alveolus and peridental membrane, due to the increased abnormal and unnatural amount of work or exercise. These movements and stress of leverage must be met with strength, the cement adhering and retentive and the wall protecting surfaces of the band. The wedge-like and prying tendencies of the partial interlocked inlay create entirely new forces toward the operator or between the roots and from center towards the external, which are claimed to be overcome by the adhesiveness of the cement, maybe, but at present I would not prefer the interlocked or overlocked inlay where there is to be more than one dummy between abutments, in small lower anterior teeth or where the mutilation of a weak or sound tooth makes a single swing preferable.

Dr. A. O. Hunt: The greatest benefit of any paper is not in the reading of it; the benefit is in what may be brought out in the way of discussions. More than that, everybody who has done anything in the way of inlay work or porcelain work has some certain ideas in regard to it, and as they work along with it, they have some experience. Now, it does not matter whether it is Dr. Le Cron or anybody else that presents a paper before a society like this; everybody who has been experimenting along these lines should give the benefit of their experience in it. We have all the time, and always have had since I have been in dentistry, two classes of men at work upon any problem that may absorb the main attention of the profession for the time being: one class of men are always going to the extreme, another class are keeping along on the conservative line of things. Now, I don't know that there is anything wrong with this. I don't think there is, because the extremists usually go so far in their experimentation that perhaps they find—and they do find now and then—some valuable ideas, but the conservative man is all the while putting the balance wheel on and holding them back, not detrimentally to their interests, however, but holding them so that they don't go actually wild upon any of these subjects. Now, I consider the paper and the cavity preparation here by Dr. Le Cron along the conservative lines rather than the extreme lines, and yet in the preparation of cavities for this class of work perhaps there is not any great radical difference. The question comes largely, and almost entirely, upon the retention of the filling or inlay within the cavity in such manner that it will resist the stress and force to the best advantage. I don't know how many of you paid attention to the models that Dr. Le Cron exhibited, but the preparations of the cavities are not extreme, at least not as extreme as some others, and yet when the inlays are placed in the cavities, it is almost impossible for them to be removed by any force of mastication and still saving to a large extent a certain amount of tooth structure. I may be perhaps old-fashioned in some things: I don't believe in saving tooth structure if in cutting it away it saves the tooth for a longer time, but I do criticise severely the cutting away of tooth structure just for the purpose of making it easier for the operator. A necessary amount of convenience is required for access in all operations, but I think sometimes—in fact I know—that extreme conditions prevail with individuals that perhaps do not produce any better results than the more conservative ways of doing things will. I apprehend that there is not any radical difference in the preparation of cavities for inlays, whether they are gold or porcelain, because the preparation is practically the same, but at the same time I must feel, and from my long experience in dentistry I do feel, like giving a certain amount of warning or a caution to not go to extremes. Be conservative but be correct; that is all. Now, gentlemen, the inlay presented here by Dr. Le Cron—to my mind, that is the only complete plan and the most perfect system of making an inlay that I have ever seen. I do not know of any plan or any way by which an inlay can be made so accurately, so simply, as this, and yet when made, when finished, so complete in all its parts; and not only that, when it is finished it is an inlay composed of pure gold. When we use 20 or 22k. solder instead of pure gold in an inlay, it does not have that comfortable, rich, beautiful appearance that pure gold gives us, such as we see in the gold filling. Now the inlay is supposed and intended to take the place of the gold filling. So the nearer we approach to that condition the better, and we may experiment as much as we please, but I apprehend that the time will never come when we will find any material that is better to make fillings of than pure gold under ordinary and general conditions. Now, then, whether you put it in with a mallet or whether you put it in by a system of anchorage inlays, mechanically, it is mechanical, anyway. We have these mechanical ideas for our basal ideas; when you can flow pure gold in and finish the inlay with that beautiful appearance that looks like a gold filling, I doubt whether we will get any better condition than that with a metal inlay. So far as I am informed, I don't believe we have ever had presented to the profession at any time a more simple, accurate, definite method than the method the doctor chooses to call the cast inlay. I would hardly call it a cast inlay myself, because it is not a process of casting altogether, but the result is obtained, and those of you who saw the clinic and the models certainly must appreciate the fact of the good appearance that was shown by them. And in closing, I again simply want to call your attention and get your minds on the fact of being conservative. Remember, Dr. Van Slyke, in opening this discussion, made the remark that he believed an inlay was very much better than any method of crowning. Now, I was probably the first one to ever teach crown and bridge-work in this country. I saw its many weak points and I see them yet, and I would be glad to see the day come when the crown can be thrown aside and the thousands and thousands of teeth that are being ruined today by trying to crown them saved by the inlay.

Dr. Starbuck: I want to say, if you are looking for a scrap and want this paper thoroughly torn to pieces, you will be disappointed. Now, the dental profession, who have taken any note of porcelain work, know who Dr. Le Cron is and what he is, and some of us who have watched his work the last few years have noticed some change in the cavity preparation he has presented. Whether he was a radical man and is getting down to the conservative or not, I cannot say; but there is no question but what he is on the conservative level now, and the cavities he has presented to you tonight in his paper and in his clinic today are based upon the accepted ideas on this subject at the present time. Whether these will be the cavities of the future or not remains to be seen. This porcelain work, and porcelain inlay work especially, is in its infancy, and although I believe it is our place to look into it and get in touch with it, still it is not advisable to discard the old methods and take this up exclusively; but get busy and help the good work along. There is no question but what the inlay, in its place—both gold and porcelain—is here to stay, and the sooner we take it up and make a study of it the sooner it will be perfected. This has got to be done by the dentists. We have the manufacturer that turns out the porcelain and the apparatus, but he does that for himself; he does not do that for you. He will accept your ideas and suggestions if they are accepted by the dental profession, but he knows nothing about the practical side of this work and the sooner you get down and work this out for the profession the sooner we are going to have it on a scientific basis. You will notice that Dr. Le Cron, in his preparations depends more on mechanical retention, flat seats and parallel walls than the former theory of retention by the use of cement. A few years ago it was advocated by some of the leading porcelain men that all that was necessary was to prepare the cavity in the manner that was most convenient for the removal of the matrix, and then depend entirely upon the inlay, cemented in under pressure, for the retention, and for that reason the inlay is in the position it is today, or has been, in the last few years. This has been a failure, but we are getting down now, as Dr. Le Cron has shown you, to the use of mechanical retention, and you will find fewer inlays being dislodged. There is only one criticism I have of Dr. Le Cron's preparation. It is this inlay or cavity (Cut No. 1), where he has grooved under the labial wall. Now, that is excellent retention if your cavity will justify it, but in most cases, where the decay is so extensive that it involves the angle, it extends so close to the labial wall that if you make a groove beneath that labial plate you cut, or have a tendency to cut, the entire dentine away extending along that groove, and the result is, you have absolutely destroyed that labial wall. It is possible, if the decay is not so extensive, to make a groove there which is undoubtedly additional retention, but be careful, in doing it, not to cut away all the dentin, for just as soon as you have cut away the dentin, you have destroyed the wall, for there is absolutely no strength in enamel when standing alone, from a practical standpoint. In regard to the gold inlay, I think the doctor's method of casting the gold inlay is simply a starter for something that is coming in the very near future that is probably going to revolutionize the gold inlay. A great many of you have read in the dental journals, those that have been following it the last few months, of Dr. Taggart's cast inlays. This, I think, is going to entirely revolutionize the methods of making gold inlays. If you can all get results as beautiful as Dr. Taggart's, there is no question about it. I appreciated listening to Dr. Le Cron this evening, and I am sure we all have. He is a learned man on this subject. I have listened to him time and again, and he always has something new, and it is always of the very best. I have certainly appreciated this paper very much.

Dr. Clyde Davis: I appreciated the paper very much. I believe it is a good one, and I heartily endorse almost everything that has been said, particularly that the retention for inlays must be flat seats and the possibility of the inlay coming out only when parallel planes pass one another. I can conceive of no preparation of a cavity that would be at all retentive were it not for the fact that parallel planes must pass one another. To accomplish this it is but necessary to take our common cavity preparation that we teach and have been taught in all the schools, particularly I refer to Dr. Black's, and consider the basal line angles; instead of having them come together at acute angles make them obtuse. In a simple occlusal cavity it would be simply making the basal line angles acute instead of obtuse. The matrix you move out to exit in but one way, and the inlay can be seated in but one direction. I passed through the porcelain craze. The first men that said anything to me about it were those who told me if I fitted an inlay in a cavity like a saucer and had a groove like that in the bottom of the saucer, and put in cement, it would stay. They all came out, and those of some of the old clinicians came out, and I lost faith in it. However, I am using the porcelain inlay, but the preparation is along the lines of which the essayist has spoken, only he has not made mention of the passing of parallel planes. Every cavity he has shown you has practically parallel walls, and such an inlay properly made, if perfectly fitted, would be retentive for quite a while with no cement, because it is mechanically retained. Dr. Hunt touched the key, I think, when he spoke of the gold inlay with reference to its supplanting the crown. I don't believe that the gold inlay—or the porcelain inlay, either—will take the preference of gold fillings, except where cosmetic effects are paramount. When we have only to think of the cosmetic effects, the porcelain inlay is the only one to think of. When we think of durability and resistance to stress, we must think of the gold inlay and metal fillings, and, as Dr. Hunt has said, if the gold inlays will do away with the large number, I believe 90 per cent., of our banded gold crowns, or any other kind of a banded crown, it will accomplish the greatest good of anything the profession can have. I was taught that gold crowns were all right to a limited degree; I used them to the limit. Dr. Hunt taught me that, by the way. He taught me just what he said tonight.

Dr. Hunt: Did you believe me?

Dr. Davis: I believed you, and I used gold crowns wherever I could see $10 and a tooth, and I think I have been conservative. I have not in my life yet cut off a tooth except for the abutment for a bridge where I could fill it. I have lived long enough in one locality to see my patients reject those crowns and decry their value, and my own experience with the work I have done myself is identical with that my neighbor has done. That man does not live—I have not seen him yet—who can so fit a band to a root on a tooth that it does not irritate the gum from the day it is put in there until the patient is in the grave or the tooth is in the basket. Sometimes the gum is more recuperative than in other cases, and they can stand the irritation. Nearly all teeth are abnormally pink or red over the band Some people are immune from pyorrhea alveolaris: others, the very slightest irritation destroys that tooth and its attachment to the tissues. Therefore, I am not in favor of crowns. I am putting them on just the same, and all of you will have to; yet the conservative man, when he sees a tooth for which it is possible to make a gold inlay, I think he should think twice and make a gold inlay instead of a crown. I am going to the national this year to see a whole section divided off for gold and porcelain inlays—a whole section—the first time in the national society. The inlays have come to stay, but I heard one man remark, "Why all this hue and cry about the inlay?" He says, "Is it because some men are looking around to introduce something in which they are so skilled that us poor yaps have to sit around with open mouths and wonder at their skill in putting them in?" I don't think that is the case. I think that they see the benefit in it, and I think they are honestly advocating it. I am a student in inlay work, and I believe in porcelain inlays only where the cosmetic effect is paramount, and gold inlays when resistance to stress is paramount. I avoid the band wherever possible. What would you do with a split root? I would do almost anything. There are lots of methods of fixing them up and I don't believe that any root is stronger with a band on it than it is without. So whenever I hear anything on inlays I heartily agree with everything I hear, as I am a student of this; I am a student, and the man who says that he can put an inlay in that will not come out, I believe him, but I don't want him to say that it is the best filling in all cases. Those of you who are familiar with Dr. Johnson's work on operative dentistry—I wish you would read the last and closing remark about the gold inlay. After going ahead and describing the methods of gold inlays, their virtues and value, he follows that with about this remark: he says: "And when properly constructed and perfectly made they will look like, and cause you to think they are, a built-in gold filling." Therefore, the most excellent gold inlay that you can make, according to Dr. Johnson's idea, looks like, represents, and is as good as a built-in gold filling.

Dr. D. J. McMillen, Kansas City, Mo.: I don't think I have anything to say along this line at this time. I was to read a paper or make a talk along this line. I am very much in favor of inlay work, both porcelain and gold, but don't forget that fillings save teeth. We don't want to get going too fast on any kind of inlays. I have been making and using inlays for quite a number of years in a way, gold and porcelain both, when we used to grind them into the cavities, and they are certainly indicated in many places and are the best class of work that can be done in many places, but not for every place. Even a good amalgam filling sometimes is the best piece of work that can be inserted in a tooth to save that tooth, and I think that we should stop to think a little about that we may be going a little too fast in regard to undertaking to use inlays in every cavity. I heard a statement five or six years ago in Denver, when I was at a meeting there, by Dr. Reeves, that the gold filling was a thing of the past. We know that fillings have saved teeth for many years, and we also know that inlays have saved teeth for many years, but I am not in favor of using inlays for every cavity. Don't forget that gold and amalgam fillings save teeth.

Dr. Woodbury: I was in hopes that you were not going to call on me. Seems to me I have been doing so much talking today, and I have to talk tomorrow again, that before I get through you will have rather an overdose of Woodbury. I do not differ so very materially from anything that Dr. Le Cron has said. I want to emphasize what Dr. McMillen has said just now: "Do not forget your gold fillings." There are places for gold inlays—I use them myself—and there are places for porcelain inlays, and where they are indicated I use them, but it has never seemed possible to me that you can seal a cavity with cement as perfectly as you can by malleting gold against the margins, if the cavity preparation is right and the manipulation of your gold or amalgam is right. There are only one or two of these drawings with which I wish to take issue with Dr. Le Cron: In general his cavity preparation is such as I accept, and most of us in this section of the country accept, but there are one or two of these that I can not accept, and I want to tell you why (Cut No. 1); for instance, in that lateral incisor the incisal margin of that cavity is brought to the point where there is the greatest condition of susceptibility of any place in that whole tooth. The margin is just above the contact point. The food gets in there and lodges on the margin of the filling. Another thing in this preparation here: He has brought the whole filling to the incisal edge; he has a long margin that extends from the distal wall over across the labial plate there, and it makes a long line of juncture between the enamel and the filling subject to stress. A preparation similar to one other he has here, in my judgment, is much better. Cutting off the incisal gives you additional anchorage as well as to bring as short a margin as possible subject to stress. There is one other cut here that I wish to say a few words about also (Cut No. 7): In that filling you also have the juncture of the filling at the point of greatest susceptibility. The contact point in this filling is nearly at the margin of this filling; also, if you will study the direction of the enamel rods you will find that these enamel rods, as they come over the proximal surface, incline very sharply. Here he has cut off the dentinal ends of the enamel rods, and has left the peripheral ends unsupported about an eighth of an inch; those enamel rods have no support except the cement. The enamel rods in the occlusal portion of the tooth will, as sure as I stand here, break down, and if I had made it, I would say that it would break down in a short time The direction of the enamel rods absolutely contraindicates such a preparation. That cavity should have been cut through to the occlusal surface and brought to a position where the enamel rods would have been perpendicular. Other than that, the paper meets with my absolute approval. I am glad to see him bring to your consideration the principles of mechanical retention for all inlays. You will remember, about three years ago, you had Dr. Reeves give a lecture in Omaha, and I think you will remember that I got up at that time in the discussion of Dr. Reeves' paper and made the assertion that in the course of two or three years we would demand as much mechanical retention for our porcelain inlays as for metallic fillings. The time has come sooner than I expected.

Dr. Vance: I have been trying to get up nerve enough to say something on this paper. I don't presume anybody has had more grief in experimenting with inlays than I have, and I have made very few porcelain inlays that have been satisfactory to me. I was a close student of Dr. Reeves' methods, and I found the same fault that Dr. Woodbury complained of—that Dr. Reeves didn't have the proper cavity preparation—and I have been following out in the past two or three years a cavity preparation similar to what Dr. Le Cron does—not as extensive, but with much better success than formerly. Still I have not been getting the success that I feel I must get in the future. I am not discouraged; I am a young practitioner, and I have not had the experience of Dr. Le Cron or Dr. McMillen or Dr. Woodbury, but when they tell us of their experience and their failures, it gives me new hope and makes me feel that there is a possibility in the future, if I keep on in the same lines they are teaching now, that I can make porcelain and gold inlays that will preserve the teeth. I still feel that they will never supplant gold fillings or amalgam fillings. They all have their place. I don't think we can lay down a rule that will apply in every case for any one filling material. They all have their place, and if you can make a good gold filling or a good amalgam filling, for Heaven's sake don't give them up and think the porcelain inlay is a panacea for all ills of the teeth. They are not, but don't neglect this new work. Dr. Hatfield has said we must do that work, and if we do not do it, we simply don't keep up with the times.

Dr. Woodbury: I just want to supplement my remarks by saying one more thing: Don't think, in your inlay work, that the cement joint will cover a multitude of sins. You must have perfect adaptation with either gold porcelain inlays, and the cement joint must be almost microscopic, and it requires as accurate manipulation and skill to make a good porcelain inlay or a gold inlay as it does to make a gold filling. And those of you who have an idea that anything can be cemented into a tooth and the cement joint is going to cover that sin are going to be mistaken. For that reason get your skill and be as exact in this work as with the most delicate thing that you do.

Dr. Prime: When Dr. Reeves came to Omaha to our meeting three years ago, he demonstrated one of his cavity preparations for porcelain inlays that very closely resembled the concavity in an ordinary sauce-dish. He made an inlay and cemented it into this cavity and told us it would stay there. I took courage and bought me a furnace.

I did not think I could make a porcelain inlay until I saw Dr. Reeves' clinic. I could not get the results Dr. Reeves says he gets. However, I am still using porcelain, but not to the degree I did when I first got my furnace. I am learning where to use it as well as where not to use it. I think the margins of a well-adapted inlay are more nearly immune from recurring decay than they would be with the same cavity filled with gold.

I think one of the best parts of human nature and of our profession is conservativeness. The human mind has a tendency to run to extremes, and, like one of the doctors said in his discussion, we find men at each extreme—all porcelain is one extreme; all gold is the other. I think that porcelain has its place: I think that gold also has its place. I am partial to a gold inlay; the field of its application, however, is limited. My opinion is today that the gold inlay is the best filling I make. I put in a great many gold inlays. I consider that both the gold and porcelain inlays have a weak point. Its adaptation to the cavity hinges upon the treacherous cement. Cement in my hands is an unsatisfactory thing, and I have wondered why they do not improve it, or why they did not improve it before I began the practice of dentistry. When I began practicing, I thought I could make a cement filling, one that would last. I read on the bottle that it was insoluble. That is a falsehood. The solubility in the cement creates a weak point in the inlay. The inlay is a grand, good thing, and I am glad to welcome it into my practice and learn all I can of it.

Dr. Davis: I would like to ask Dr. Le Cron one thing when he closes the discussion, or one question, and that is as to the wax he uses in beginning upon this inlay. I didn't see that in his clinic. I use hard wax or crown and bridge-work wax, called sticky wax sometimes. I would like to know if he knows of any wax that is an improvement on that wax.

Dr. Le Cron: Just the ordinary beeswax.

Dr. Le Cron (in closing): In closing this discussion, I have but very few remarks to make. In regard to Dr. Woodbury and some other gentleman—I don't remember who it was—but you will note in the two incisors the cutting edge is wide—plenty of room in this one, and in the other one the incisal edge is sharp. You will note in the paper that I spoke of the sharp incisal edge. This one, as a rule, I cut away where these gentlemen spoke of, but there are some cavities that are shaped in this way. In this cut, of course, it represents, no doubt, the enamel rods, as he says here, perhaps one-sixteenth to one-quarter of an inch. Of course that is supposed to come down here a half inch on model. These cuts are not made by measurement, but the cavity is extended in that way, the decay extending in under the cavity proper. You get quite frequent cavities there on those surfaces, and all I have to do is to make the separation and cut in and form that box; secure perfect adaptation to the cavity. The thin margin of cement there, with either a gold or porcelain inlay, will support that part. It is different from gold fillings. In speaking of fillings, I wish it understood that I put in a few amalgam fillings; I put in gold fillings, too, but when it comes to a large contour filling, I fall back on the gold inlay. I have put them in for years, and I have had good results, and to a man starting in I would say that I had my break-downs many times; not every inlay I have put in was a success, either porcelain or gold, and when we start out on inlays we must expect to go up against some break-downs occasionally; and you cannot expect to start in, and not understand the formation of the cavity and the adaptation of the matrix, and meet with success. You have got to understand them. You must have everything perfect, but you cannot expect to do that the first time. We can tell you how to form cavities and construct inlays, but you must learn to understand them from a mechanical standpoint. We did not do it perfectly the first time, not by a long shot; and the best way, perhaps, is not to experiment on your patient, but to experiment out of the patient's mouth until you become somewhat proficient and you get confidence by working that way. You do not learn this in a week's time or in a year's time. I don't claim to be proficient yet. I have got much to learn, and I think many more of us will have to do it. You must make up your minds to experiment; no question about that. You could not put in gold fillings when you started on them; you were not proficient. It is experience that makes all these things apparently easy; and the younger men, particularly, it is well for them to experiment and put in some of their time at least trying to solve the problem. Some of you no doubt are quite busy all the time, but put a little time in, in the evening; go down to your office early in the morning; that is the way Dr. McMillen and these other men did in their time. You have to experiment and work to become proficient in anything, no matter what branch or business or vocation of life you are in. You have to work to meet success. It is the same way with gold and porcelain inlays. I don't know as I have any other remarks to make or any questions to answer. If there are any questions that you wish me to answer, I would be glad to do it. About the wax: it is just the ordinary wax. In boiling it out you get your surface perfectly clean. Of course, the matrix in these inlays is invested before you burnish over the contour and the occlusal surface. It is invested so that you can handle and burnish in that way. I thank you for the kind words you have said and the attention you have given me.

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FAILURES AND SUCCESSES OF PROSTHESIS*.

By George H. Wilson, D. D. S., Cleveland, Ohio.

I feel some reluctance in writing upon this assigned subject, because I realize that there is so much that might be profitably said of the failures and successes of prosthesis that I fear lest I choose not the best. However, there are some phases of the subject I especially desire to present, and I trust in such a manner as to provoke a meritorious discussion.

That there are many failures in prosthetic dentistry cannot be gainsaid; the only wonder is that they are not more numerous and disastrous.

The first cause of failure we will mention is of a fundamental nature:

We practice prosthesis empirically. What an imputation; a supposedly learned profession accused of performing operations in a more or less perfunctory manner! We must concede, upon reflection, that the charge is only too true. How little we know of the physical properties and laws controlling the materials with which and of which we construct our appliances. As an illustration, we will consider plaster of paris. By rote we have said it was the best material for taking impressions and making casts for vulcanite work and models for swaged base-plates; we have said the materials expanded and have attributed to that property most of our failures. (It is always a convenience to have an insentient object upon which we may put our ignorance and shortcomings, however, this may be to our detriment). We say plaster expands; how much and what is the cause or causes of its expansion? How can this property be controlled or utilized? It is true this property of plaster has been under consideration by the dental profession for more than a half century, yet it is only within a few years that the study of this property of plaster can be called scientific; and still its study has been meager compared with what must be done before this one property is well understood. The compressibility of plaster of paris has been less understood, and confused with its expansion. It is quite probable that our failures in vulcanite work are more due to the property of compressibility of plaster than to that of expansion. However, much experimental work will be required to scientifically determine this assertion.

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*Read before the Northern Ohio Dental Association, Cleveland. June, 1907.

Our text-books inform us that metals have the properties of malleability, ductility, tenacity, compressibility, flexibility and rigidity; and, in some of these properties the metals are grouped in order. But what knowledge is given us that we may calculate the diameter of a dowel-pin for a crown? What do we know of the resistance of the metals and alloys we use in constructing a dental bridge? What do we know of the resistance to stress of the form we give to our bridges? What would be thought of an architectural engineer who would construct a bridge across a chasm without having it definitely designed to carry a maximum load, and that each part should be proportionately as strong as every other part of the structure? Such an architect would be considered as an ignoramus, or as criminally careless and unworthy of confidence. Are not broken crowns, bridges and plates a serious reflection upon our scientific pretentions? Thus we might carry the illustration through every subdivision of prosthesis, and the same conditions will be found to exist; hence we think the assertion that "We practice prosthesis empirically" is well sustained.

This affirmation should not be taken as casting a reproach upon the dental profession, for it is not so intended, nor should it be so construed. There are good reasons why this should be the present status of our progress. The origin of the profession is so recent that the time has been well spent in developing the more superficial and visible portions of the technique. However, the time is now here when the dental mind must be more concerned with the fundamental principles upon which our work must be constructed if it is to endure and be worthy of a place as one of the humanities.

HAS PROSTHESIS KEPT PACE WITH OPERATIVE DENTISTRY?

One of our noted (dental) writers has, upon various occasions, made the statement that prosthesis has not kept pace with the other (operative) division of dentistry during the past twenty-five years. In a measure this is true, but we cannot accept the full significance he seems to give the assertion. We must bear in mind that during the thirties, forties and fifties prosthesis (or mechanical dentistry) constituted the very large part of dentistry and advanced by leaps and bounds. It was during these years that porcelain (or mineral) teeth were perfected both in composition and form, swaged plates and soldered work were developed, continuous gum invented, vulcanite discovered, and we must include that greatest of all boons to humanity, the discovery of anaesthesia (nitrous oxid). Certainly we must include anaesthesia with inserting artificial teeth, for in that day it was probably only thought of as a means of making less painful the preparation of the mouth for artificial dentures. It was in these years that the principles of retention of dentures by contact with the soft tissues were developed; although probably their physics were not perfectly understood.

As the prosthetic side of dentistry was making such progress some thoughtful minds turned to operative dentistry, and this department began to boom until it became the admiration of the American dentist and one of the wonders of the world.

While the great advancement in preserving the natural teeth has been developing, according to the author previously referred to, only the subdivisions of prosthesis known as crown and bridge and orthodontia, and to these may be added partial lower plates, have made commensurate advancement.

In reply to the author we have quoted, we must say that owing to the development of plate work during the third, fourth and fifth decades of the last century it was hardly possible that there should be as great improvements in the technique as have since taken place in operative dentistry. However, there is a phase of the progress of operative dentistry that has outstripped prosthesis, and that is, the science. No such work has been done in prosthesis as has been done in the operative department by Drs. Black, Miller and a few others.

A NEW ERA IN PROSTHESIS.

We believe we are on the verge of a new era in prosthesis, in fact that the foundation is already laid in the art and esthetics, and we trust the science will not be far behind. We believe the third edition of the American Text-book of Prosthetic Dentistry makes an epoch in the progress of this department; and with Dr. Snow's latest contributions to the subject of articulation a revolution must be produced. The day is past for quash bites and hinge-joint articulators for the man who is intelligent and is honest with himself and his patient.

We concede the operator has overtaken and surpassed the prosthetist only insofar as the superior scientists have delved into the operative department. We contend the artisan has reached his limit in both departments and that future advancement must be through the work of the scientist. He must develop the fundamental principles underlying the work of the artisans of our profession; he must improve and develop the methods of the artisans, and he must classify and put in teachable form his acquired knowledge for class-room use so that the rising generation of dentists shall be superior to the passing one, and thereby exalt our noble calling. As the proud distinction of the American dentist has been attained by its artisans, care must be exercised that we do not now make scientists at the expense of our artisan dentists. This is no plea for a profession of dental scientists, but rather the admixture of sufficient dental science so that our future dentists may be better mentally and technically equipped for their life's work.

ART IN PROSTHETIC DENTISTRY.

There is another element that must enter more largely into prosthetic dentistry, and that is, art or esthetics. Esthetics must enter largely into prosthesis and orthodontia, and to a considerable extent into porcelain inlay and porcelain crown and bridge-work.

Indeed, a good definition of a dental prosthetist is, one equally skilled as a dental scientist, esthetist and artisan.

From whence are we to derive our prosthetic scientists? They may come from the teachers of prosthesis in our dental schools, or they may come from the practitioners of dentistry; more likely from the practitioners because there are so many more of them than of the teachers, and also because there are so few of the teachers that are not general practitioners teaching as a side issue. However, it would not be surprising if our teachers, though few in numbers, but full of zeal and enthusiasm, should furnish us most of our prosthetic scientists. We have no schools for educating prosthetic scientists, so if we are to have them in the near future they are now diamonds in the rough, and like the diamond, they must be polished by their own grit. We hear men say there is nothing new to write about in dentistry, everything has been written threadbare. That is not true, unless it is of dental technique from an empirical viewpoint. Let me suggest a subject for a scientific treatise. What should be the diameter and shape of a dowel-pin for a porcelain crown? Ah! but you say, that is a common, practical technic subject. True, it is practical, practical applied science, the only kind of science we have time for in our dental schools; but before the treatise can be written much work will have to be done in mechanical engineering. Here is a field that is white for the harvest for young men with energy and bright intellects.

The second cause for failure is:

A wrong conception of the possibilities of artificial dentures. This error is held in common by both the laity and the profession. It is true that a time may come when an artificial denture will better serve a patient than his natural teeth; but that is always a question for serious consideration. There can be no comparison between even the best artificial denture and a good set of natural teeth. To have the teeth extracted because they are ill-formed and alined, for the purpose of inserting artificial ones, should be classed as a crime; to let them go unattended, with the avowed purpose of having them removed as they give trouble, is a sin against nature to which no dentist should be accessory. This does not imply charity work upon the part of the dentist, because reasonable service can be had within the limits of any purse; but it does mean that a dentist is accessory when he permits the patient to arrive at such a determination without a vigorous protest. Patients are too apt to get the idea that the dentist can do far more than is possible, and they learn their mistake when it is too late. We are told that it is possible for the human jaw to exert a pressure of two hundred and fifty pounds, and that this force may accidentally fall upon a single tooth. We are also informed of the artificial dentures resting upon soft tissues, that the patient will only exert about one-fourth the pressure that they will upon their natural organs; thus we see why artificial teeth should not be considered as restorations—only substitutes. This fact also explains why it is wise to have the molars and bicuspids, especially the molars of artificial teeth, made smaller than natural ones. If only one-fourth of the power is to be exerted upon the artificial teeth in mastication it is the part of wisdom to concentrate the energy upon a smaller surface, and thus cause greater effectiveness.

Another reason why the manufacturers have shown greater wisdom than our teachers and speakers who are so vociferous for larger molars and bicuspids is because of the mechanical principle of leverage involved in artificial teeth, and, as the summit of the upper alveolar ridge recedes upward and inward, it is necessary to have the molars and bicuspids set more lingually than the natural teeth; and thus, by having them narrower, bucco-lingually, they interfere less with the tongue.

THE VALUE OF NATURAL TEETH.

The dentist can hardly overestimate the value of the natural teeth, nor too strongly impress the truth upon his patient. We teach that the first requirement of an artificial denture is utility, and second, cosmetics. It seems to the writer that this order should be reversed, and that we should teach that the first requisite that can be, and should be, attained is the restoration of the harmony, contour and expression of the face (cosmetics), and the second requisite is an instrument for incision, mastication and enunciation (utility). We should teach that neither of these objects can be perfectly attained, but the first can be more nearly accomplished than the second. Certainly, if this idea could be impressed upon the minds of our patients, they would be less willing to part with their natural teeth, and the dentist thus impressed would be more strenuous in his efforts to save the dental organs.

A third cause for failure is:

Cheap materials and short-cut methods. This does not necessarily signify that because a material is low in price that it is inferior quality, for it may not be; but usually there is a direct ratio between price and quality. Nor does it imply, because a material is high in price, that it is of good quality, but usually it is; sometimes, though rarely, the quality is not in keeping with the price. The dentist may be deceived and imposed upon in his materials because he is largely at the mercy of the manufacturer and dealer; it therefore behooves the practitioner to purchase only of those whom he is confident are honorable and upright. However, the dealer should not be considered dishonest because he exposes for sale an inferior article if the price is in keeping with the quality; but he is thoroughly disreputable if he knowingly offers an inferior substitute as "just as good." The dealer's duty is to supply the wants of his customers; hence it follows that if a supply house is filled with low-priced, inferior quality of goods it is bceause the dentists will purchase them; therefore the condemnation should be upon the dentist.

SHORT-CUT METHODS.

"Short-cut methods" usually mean short-cut results, and upon such too strong a condemnation cannot be pronounced. There is a common significance given to this term "short-cut methods," which means a saving of time and material, and which gives a fair to excellent external semblance; hence a perpetrated fraud. In contradistinction to short-cut methods we may have modern scientific methods because the results are more durable, esthetic and conducive to health. No new methods should be adopted unless the service rendered the patient is equally as good or better than by the old one.

Barring the personal equation, we believe the three causes we have named, "We practice prosthesis empirically," "A wrong conception of the possibilities of artificial dentures," and "Cheap materials and short-cut methods," will account for all our failures in prosthesis. We have said nothing of the imperfections of our best quality of materials with which to do our work, for we realize that as soon as the dentist, through scientific means of investigation, indicates a perfected material or implement the manufacturers will be only too glad to place it upon the market. Modern amalgam, as the result of Dr. Black's investigations, is an instance of the truth of this statement.

This paper has been devoted largely to the causes of failures in prosthesis, because it is by the study of these that we may hope to reach perfection. Success is a relative term; it does not, like perfection, mean supreme excellence; if we accomplish what we aim at we have success, but the object attained may be very imperfect. Thus we may say that prosthetists have been successful, although they have not reached perfection in anything. How true are the words of the great Agassiz: "The student must remember, for his consolation under such disappointments, that his failures are almost as important to the cause of science and to those who follow him in the same road as his successes. It is much to know what we cannot do in any given direction—the first step, indeed, toward the accomplishment of what we can do."

It is appropriate at this fiftieth annual meeting of this association that so much of our program should be devoted to retrospection. However, we should not be content with the progress our profession has made in the past, but because of its successes we should be enthused to greater efforts for the future. Our failures point the way for our future efforts. Shall we not henceforth give more attention to the science and esthetics of prosthesis, and thereby strive toward perfection?

A FEW UNUSUAL CASES.*

By Dr. Fred J. Prow, Bloomington, Indiana.

In this paper, if such it may be called, I desire to bring before you a few cases more or less unusual. I have often thought if we would each give account of some of our peculiar and unusual cases, with manner of handling same, that we would be of great practical benefit to each other. In our dental meetings I have been impressed at times that some of our papers are rather too theoretical, lacking in minutiae and detail as to method or procedure. So if this paper seems too practical and lacking as to its literary value, I defend its character by saying it's my eccentric view upon the subject.

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*Read before the Indiana State Dental Society, June, 1907.

NECROSED AND CARIOUS BONE.

I shall first call your attention to a subject which, it seems to me, has been more or less neglected or ignored by our profession: that of necrosed or carious bone. It has been my good or bad fortune to have had several of these cases, of which I have kept record, and which I trust may be of interest and possibly of some service to my fellows. Briefly let us consider the terms necrosed and carious bone: Barrett in his work on oral pathology says, "Carious bone is a disease which may be compared to suppuration or ulceration in the soft tissues. It is the devitalization of bone, cell by cell, breaking down by comparatively slow progression rather than by mass," the phenomena exhibited varying somewhat from those of necrosis; "necrosis is the analogue of gangrene in the soft parts; necrosis differs from caries of the bone rather in degree than in essence." Like caries of bone, its cause may be traumatic or specific, local or constitutional. Necrosis in most cases throws off a sequestrum, and in this particular differs from carious conditions.

CASES IN PRACTICE.

In October, 1900, Miss A., aged 22, applied to me for dental services. She had previously had quite a great deal of dental work done. In the process of the work, I opened one of the superior centrals, finding quite a discharge of thin, dark, straw-colored pus, although no outward symptom showed this condition, no fistulous opening. Upon opening the second central, however, and finding some discharge, my suspicions were aroused. I inquired of patient as to her past and found her history was good, as far as I could learn, no specific disorder having existed. She said she had been subject to severe and frequent headaches for years. As the work progressed, I opened the laterals, cuspids and first bicuspids, with this discharge coming from each of them. I treated the case by forcing antiseptic solutions into tracts through canals by use of hypodermic, using hot water first; then peroxide second; antiseptic solution third, flooding thoroughly. I treated case until in December, over a period of six or eight weeks, when I was convinced necrosis existed. I should mention that there was quite a discharge of this straw-colored pus at each time teeth were opened for treatment, it being my custom to seal the canals with temporary stopping after each treatment. I consulted one of our profession, who in some measure specialized in dental surgery. He pronounced it necrosis, and the straw-colored pus, typical necrotic pus. He advised operation at once. I would say, in my judgment, this character of pus is never seen only where carious or necrotic conditions exist and should be one of the means of diagnosis. The apices of teeth seemed rather large and felt rather peculiar to touch. These canals were dried and filled as best they could be on the eve before the operation. Patient was operated on at hospital. Horizontal incision was made entirely across anterior portion of jaw, about one-quarter of an inch above the gum line. The lip and tissues retracted upward and held. Then with large burs in engine and scrapers, the softened tissues were thoroughly removed and washed out, the roots of the teeth exposed and standing out almost like the fingers on your hand, with but little bone left to their support. Edges of incision were drawn together with ligatures. Usual cleansing and antiseptic measures were used at the hospital, subsequently followed up by myself after patient's return. We learn by mistakes, 'tis said. The teeth were so unsupported by loss of alveolus that the apices of teeth deflected inward, especially the centrals and laterals, the crowns of which had been removed. However, I was able to make Richmonds for same, and brought them into line. An appliance should have been made previous to the operation for the retention of roots or teeth in their proper relation, and cemented in position at end of operation. This would have avoided the ugly results obtained; results in this case were fairly satisfactory. There has always remained a certain amount of congestion of parts. But the headaches ceased and patient was in good health the last account I had of her, about a year ago, teeth doing good service. Cause of this condition was, in my judgment, due to careless or incompetent dental service.

Miss B., aged 15; history good; right superior central, with faulty Logan crown in position; alveolar abscess with fistulous opening of long standing; crown removed; could pass probe through canal and some distance beyond before touching the bone. Will say just here, I have found in all these cases quite a destruction of bone beyond apex, and by means of passing the probe through and measuring will assist in diagnosis. Also the probe will assist in revealing by touch the direction and extent of lost bone. I treated this case by ordinary antiseptic measures, forcing through carbolic acid to destroy pus sac. Failure. A month later chloroform was administered, root removed. Cavity thoroughly burred and scraped out. When completed, had a socket about three-quarters to seven-eighths inch deep and about one-quarter inch in diameter. Second mistake. I did not anticipate the necessity of a retaining appliance for root. I hastily made one out of thin gold (shows appliance) ; crude, yes, but effectual. I might add just here that immediately after extraction I always drop the tooth into antiseptic solution, and cleanse root-canal and amputate end slightly, polishing smooth with disk afterward. Hold root in clean napkin, being careful to not destroy the peridental membrane. Replace in solution until ready for replacement; this retains the vitality of membrane. This operation done March 3, 1900. Appliance removed April 27th. Root perfectly firm. Richmond crown made June 21st, and still doing good service today. Cause of condition speculative.

October 25th, 1901, Mrs. C. Health good; history good. Presented with two superior centrals and left lateral, approximal gold fillings in each. Teeth very dark, almost black. Opened right central and found the canal had been enlarged and filled with a mass of cotton which had supposedly been saturated with some medicament; the medicament had long since disappeared, and you can imagine what had taken place. On opening the adjoining central and lateral, found same condition. To time of opening these teeth there had been no pain or swelling. The canals were dressed with antiseptics: immediately swelling ensued, apparently from lateral; it went usual course of severe alveolar abscess. Great swelling in palate, about one-half to three-fourths inch back of teeth; this pointed after several days; was lanced and evacuated several times; discharge very profuse; treated continuously with ordinary antiseptic measures, condition growing worse. Had X-ray picture made and tried by illumination also to tell what trouble was, but failed. On November 20th, chloroform administered. Incision made above centrals, laterals and left cuspid about one-fourth inch above gum line. Retracted lip and soft tissues upward. Thoroughly scraped and burred out diseased tissue around centrals, finding it necessary to remove the lateral. Scraped this cavity thoroughly. It extended back into palate, would say, an inch and probably one-half inch wide and one-half inch deep. I endeavored to save the bridge of gum over where lateral was removed, but failed. The destruction of tissue was great at lateral. End of one's finger could have been laid in cavity. After cleansing cavity with hot water and antiseptic solution, a previously made appliance was cemented into position, the lateral being held in sort of pocket in appliance. Lateral was thus hanging in space, so to speak. I should add, I profited by former experiences and had appliance ready. We tried to stitch together the wound in palate, but owing to depth of palate failed, the depth interfering with the use of needles. I saw this case each day, and washed out the cavity first with hot water, following with glyco-thymoline solution, 50 per cent., from date of operation on November 20th, to February 12th. Wound under lip healed nicely. The two centrals changed position somewhat, but nothing serious, the lateral being retained in its place; bone and gum tissue formed around it until you would not know it had ever been out. The lips of wound in the palate would not unite, but formed a perfectly firm, healthy, artificial opening, say ⅜ inch long, but the lips coming in touch with each other. A probe could be, and can still, be passed through this slit and the denuded bone felt plainly. I scarified lips of wound repeatedly, but would never unite. I sent patient to consult our worthy surgeon, Dr. John Oliver. He said, "All well and good, let it go." So I did. Patient never had any further trouble whatever. Cause of trouble in this case undoubtedly due to maltreatment of the canals. Would like to add, before leaving this case, that operation was performed on November 20th, 1901. End of lateral root amputated and polished, canal filled. It was a small, frail tooth with two approximal gold fillings. On May 12th, 1903, conditions demanded crowning and I placed a Richmond crown. On May 3, 1904, patient carelessly bit on some hard substance and shattered the root, necessitating its removal. I extracted same and was thoroughly convinced of the bony replacement around it. It seemed to be as hard as stone, and root was quite difficult to remove. I bridged lateral in later.

January 22nd, 1903, Mr. D., aged 28, presented with abscess with fistula on superior lateral. Gums purple and red over quite an area. Teeth very dark, both central and lateral. Patient was from out of town. I treated abscess in usual manner, washing out through fistula, following with carbolic acid. On February 13th, returned; no better. Re-treated. On March 27th, returned; condition unchanged. Central opened and found it involved also. I advised operating. On April 28th, under chloroform anesthesia, I removed both the central and lateral, thoroughly scraped out dead bone, loss being extensive. Replaced the two teeth and held in place by a previously made appliance. This appliance was worn some time—I have no record of how long—but on March 25th, 1904, I placed Richmond crowns on each tooth, and patient has had no further trouble. Gum tissue perfectly healthy. Teeth firm. Cause of this case, a blow with a brickbat when a child 15 years old.

I was called to see little girl at hospital injured by premature explosion of a sky-rocket. Accident occurred on September 4, 1906, Labor day. Age of child, 7 years. Rocket struck child square in mouth, but missing lower lip and jaw tearing upper lip out up to the nose, knocking upper anterior teeth out, taking process and all with it, tearing palate out into nasal cavity, breaking left side superior maxillary, shattering it so fragment hung down almost to median line, moving back and forth. As I stated, accident occurred on September 4th. I was called to see the case on September 7th. Surgeons had deemed it best on account of conditions, etc., to not call a dentist on night of accident, but had depended on their own resources and had ligated the fractured portion of maxillary on left to sound portion on the right, with silver wire, the result being to pull fragment down and away from its proper position. They had restored the lip in some measure by harelip pin thrust through torn parts, with ligatures wound around it in figure-eight fashion. At time of my first visit, pus was discharging from wound, nose and mouth. Eyes almost shut, jaw badly swollen, almost impossible even to get an intelligent look. Such was the condition to face to get an impression of both jaws. How different it would have been at time of accident before lip was restored and swelling ensued. However, this is not meant in a spirit of criticism. The surgeons thought it would be unwise to submit child to second anesthesia until the 11th. On this date, with stitched lip, swollen and distorted parts, pus all about, and chloroform anesthesia, I began the arduous task. I cut sides of tray No. 19 down, and while assistant held fragment in approximate position by passing ligature around temporary molar in fragment, I got a compound impression, and as good luck would have it, the doctor pulled just right and fragment was practically in its proper position. The lower impression was not quite so difficult. Two days later, the 13th, administered chloroform again, and placed splint in position nine days after injury. After placing splint, we tried to hold it in position by bandaging, but this was only partially successful, only holding fragment up approximately to place on account of the jaws springing apart. We let it drift along for about 10 days, when swelling and general conditions were more favorable; then child came to office; I cut holes in sides of splint and put in curved metal bars and headgear. This, after trying second time, worked admirably. It being adjustable, could be regulated as demanded. I think child wore this splint about two months. Appliance cut corners of mouth and was removed before fragment was firm. This case offered several unusual and difficult conditions, age of child making it difficult after accident to tell normal occlusion; pus, torn lips with likelihood of tearing wounds open anew, and the extreme swelling rendering access very difficult; danger from too frequent anesthesia; many pieces of sequestra worked out around fragment; quite a swollen purplish condition occurred under left eye, and it looked for a long time as if bone would work out at this point. Finally subsided, with only an ugly depression behind it and a slight drawing down of lower eyelid. Fragment is now tight, suppuration ceased, palate closed and filled over; slight appearance of harelip. All in all, the child presents a far better appearance than at one time seemed possible.

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DISCUSSION.

Dr. J. H. Morrison, Connersville, Ind.: I have had so little experience in cases of this kind that I feel I am not the proper one to open the discussion on the paper, but surely Dr. Prow's skill and patience in handling the case in which the little one was injured by the skyrocket has shown to you that he is very capable. A good many dentists would have gotten those teeth out of there. However, I am a little conservative in a matter of this kind, but have always had the idea that when any considerable amount of disease occurred about the teeth it was likely to leave a permanent diseased condition. Personally, I feel as though it would probably be better to remove the teeth, although I do not know that I am right. I do not know what the people who practice replantation of teeth are doing. I do not hear much about the subject, but Dr. Prow has certainly handled this case very admirably, and it would probably be better for us if we had our attention drawn to cases of this character a little more often than we do. I sometimes think that we are not as shrewd as we might be in discovering diseased conditions of bone. A great many of them exist without any one having any knowledge of them.

I had a case in which the right upper cuspid did not look just right to me, so I made an investigation and concluded that the seat of the trouble was in the root-canal. I opened it and treated it for a long time, but did not seem to make any impression on the disease. There was a gold crown on the right cuspid, and the pulp was dead. The lateral incisor looked very well. There was a porcelain crown on the right central. I took that off, and in cleansing the root the solution was forced out at the opening in the cuspid. Upon further investigation, I found that there was diseased bone from the right central to the first bicuspid. I treated the diseased parts for some time and got them to looking very well, and later replaced the crowns. Although the parts look healthy now, I am always suspecting that sometime trouble will arise.

Dr. H. M. Brown, Elwood, Ind: I haven't very much to say about treatments, except to relate a little experience I had when I first started out, which was about 13 or 14 years ago.

In my case, I think I got scared, and I think the scare was a good thing for me, inasmuch as the disease was progressing quite rapidly. However, it did not get as far as the case mentioned. I discovered it in the central incisor, opened it up, and treated it in the usual manner without getting satisfactory results, so I thought I had done about all the treating possible. I filled the tooth, and in about four or five weeks the patient came back. I opened it up again, and it was just about as bad as before. The filling did not seem to have done any good. I treated it again as long as I thought necessary, and finally extracted it, as I remembered that we had been told in college that whenever we got hold of an abscessed tooth, to go after the abscess. This seemed about the only way to handle this case, therefore I extracted the tooth. If I had left that tooth in and kept it filled, the abscess probably would have invaded the surrounding tissues for a considerable distance. I believe that sometimes extraction is the only way to stop trouble of this kind.

Dr. D. A. House, Indianapolis, Ind.: I feel that any one who will take the time and the trouble to go into a subject and write a paper as Dr. Prow has done is certainly deserving of much credit. There are so many things written and talked about which are not practical that when a paper like this comes along it is pretty hard for me to sit still.

The things which Dr. Prow speaks about are liable to happen to everyone, and these are the things in which we are interested.

The principal thing I want to speak about is the first case he mentioned. I had the pleasure of knowing something about that case, because I saw it before the operation, and watched it a good while after the operation; but in his modest way of describing the case, Dr. Prow has not done himself justice by any means, because this is a case which would be creditable, not only to a man of Dr. Prow's age, but to any man in this room, whatever his age. To me it was a very remarkable case, and the case has been given just exactly as it was. This case only strengthens and bears out the idea that it is sometimes very profitable to operate upon apparently the most hopeless case.

Dr. S. T. Kirk, Kokomo, Ind.: I am very much interested in the gentleman's paper, and I think that we all should be interested in cases of this kind and be prepared for them. But in all of these and similar cases we want to search out and get the originating cause, get at the base of the originating cause; and to emphasize this I am going to relate an incident in my experience: I think it was about 28 or 29 years ago I was called upon to treat an abscessed condition, with a discharge over the very posterior portion of the palate bone. It did not seem to bother the lady very much, except at first, when there was a constant pain in the mouth. In making an examination, I found that the palate bone was diseased. She was very timid and did not want anything done, so I treated it with antiseptics for quite a while, and finally told her that an operation on the palate bone would have to be performed and a part of that bone removed, thinking I would get at the seat of the trouble. I removed a portion of the bone, in the hope that there would be no further trouble; but I must say that after the operation the trouble continued just the same, really, if anything, a little worse. I made further examination and came to the conclusion that a lateral incisor was the cause of the trouble. It had never hurt her a particle, but it had a couple of cavities, one in each side, extending to the pulp chamber. I concluded that I would make an investigation, which I did, and found that the pulp was dead, and I immediately saw that all of this trouble had arisen from that lateral incisor, although the roots were not very badly diseased. However, I just simply picked up my forceps and pulled out that tooth before I let her know anything about it, and the pus discharge showed, beyond a doubt, that this was the seat of the trouble. I took my old Johnson engine, with a proper bur, and I drilled clear through the socket of that lateral incisor until I got to the place where I had operated previously, and then syringed the cavity out thoroughly. Some time had elapsed, and I took up that lateral incisor, cut off the end of it some, filled the root-canal, put in gold fillings, replanted the tooth and tied it with a good ligature.

I saw that tooth the other day, and it was in good condition, and the gold fillings were in there yet. That was 28 or 29 years ago.

Dr. Marguerite Shaw, Rossville, Ind.: I have a case on hand now of a lady about 30 years of age, and I am much interested in how to treat it, because I feel that possibly I may be in error. I do not remember now on which side of the mouth the trouble originated, but anyway, the two bicuspids are loose and have been, I suspect, for the last six years, from the history she gives of the case. Now, I should like to ask Dr. Prow if those teeth, in the first place which he spoke of, were loose?

Dr. Prow: No.

Dr. C. M. Cahill, Valparaiso, Ind.: I believe if the gentleman had proper apposition of parts—I understand the fragment was large—that he will have a healthy granulation, and the only trouble I can see is that of suppuration, which might result from improper prophylaxis. In dealing with these cases, I have found that the Merrill company put out a preparation—Normal Tincture of Echinacea—which has marked antiseptic qualities. Wherever there is pus existing I find that it is eradicated by this drug. In my judgment, I believe it is good to use internally, externally and eternally This is a normal tincture, and one minim represents one grain of the drug used. You can buy the normal tincture, and use two drachms of it in a four-ounce solution, and give a half teaspoonful of that every three hours. I also insist that the patient wash out the mouth, as it will give excellent results.

I saw a case in which the patient was lacerated with a saw, producing a very ragged wound. The wound was simply bathed with normal tincture of echinacea. There was a healthy granulation, no pus, and the wound healed nicely, and the patient is now in good health.

Dr. H. E. Strain, Bloomington, Ind.: I just want to say in regard to the above case of Dr. Prow's, that I saw this case with the fracture. It was after the girl had been taken to Dr. Prow's office, and at that time it looked to me as an almost hopeless case. Of course, it was not nearly so bad then as when he first took the case. While I have not had the pleasure of seeing the little child since she recovered, I understand that she has a very nice appearance.

I could not imagine a worse fracture than this for a doctor to handle.

Dr. F. J. Prow, Bloomington, Ind.: I have nothing further to offer of any moment, but my excuse, if it be necessary to make one, for some of these operations is, that in many instances the features will be somewhat distorted if you extract the anterior teeth, as Dr. Morrison says. I would probably extract them in some cases, and probably any of us would extract the posterior tooth.

Loss of tissue and distorted features appears to me as being of sufficient importance to warrant an attempt to save the anterior teeth and hold them in line, for the purpose of having something to support the tissue. In my opinion, the treatment in the first case was many, many times easier on the patient than going through a surgical operation, and the final restoration by crowning, and the lady's features are, as far as the ordinary observer can see, all right.

Dr. Morrison speaks of a case which, to me, would bear watching very closely. If I had such a case, I would either extract or operate.

Replantation of teeth was mentioned, and I wish to say that I have replanted a number of teeth with very few failures. I do not think any one can expect to do this successfully without failures.

TO WHAT EXTENT ARE DENTISTS RESPONSIBLE FOR MAL-OCCLUSIONS?*

By C. R. Jackson, D. D. S., Indianapolis, Indiana.

The subject of orthodontia has received much attention during the last few years, indicating an awakened and increasing interest in this important branch or specialty of dentistry. So numerous have been these papers, in our dental journals, and so general the discussion that orthodontia may claim at present to rival porcelains and gold inlays for professional consideration. Unfortunately, many will treat a case or two without properly understanding the cause, methods of treatment, or principles of retention. The consequent failure will result in the condemnation of the whole practice just as porcelain inlays are condemned by many because a few inlays inserted, without first mastering the art, have proven failures.

Many dentists, for various reasons, do not care to undertake the treatment of these cases when complicated, and very properly so; but does that relieve them from all responsibility in the matter—the responsibility of treating simple cases, at the proper time, and especially of being able to diagnose the causes and, by eliminating these, preventing many of the mal-occlusions from which our patients suffer?

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*Read before the Indiana State Dental Society, June, 1907.

During the process of mastication or preparing food for the stomach, I believe trituration and not insalivation is most essential to perfect digestion, without which we have imperfect assimilation, malnutrition, and the resultant ills.

The human jaws, with the teeth placed in normal position and properly occluding, are wonderfully adapted for crushing and attrition. Allow a tooth to be mal-placed or by extraction break up the continuity of the arches, and its effectiveness is weakened or lost.

Granting then its desirability, if not its necessity, for our well-being, should we not make greater efforts to establish and preserve a normal arrangement and perfect occlusion? The greatest efforts in the medical profession are being directed toward the prevention of disease, and our specialty should not be behind the mother profession in this important work.

The causes of pathological and malformed conditions of the body are now generally attributed by scientists to environment rather than to heredity. Anomalies of the teeth are not an exception to this general tendency, some even contending that environment is entirely responsible and heredity not at all.

I do not believe we can inherit the small jaw of one parent and large teeth of the other; in all nature there is a tendency to harmony of parts. Like begets like, however, and there are occasionally malformations and peculiarities of the teeth which are directly inherited.

The great preponderance of irregularities of the teeth, however, are due to causes operative after birth. I will consider, briefly, a few of these causes, which are preventable, and for the existence of which the dentist may be considered directly or indirectly responsible.

FIRST.—DELAYED TREATMENT.

All conditions of malocclusion, except those caused by pyorrhoea, are produced between the ages of 6 and 14 years, during the period of growth and development of the child. A slight force, continuously applied, may, at this age, produce a decided abnormality, or, the same amount of force, properly applied, may correct an abnormality already existing. There are, however, many dentists today who lose sight of this fact and still adhere to the old theory, that all the permanent teeth, except the third molars, should be in position before the beginning of treatment.

In many cases, deferring treatment almost, or quite, precludes its possibility. This is true in the condition known as prognathism or inferior protrusion, for two reasons:

First: It is a progressive deformity and early treatment prevents its extreme development.

Second: As the abnormality is in the inferior maxillary bone, and not the process or teeth, treatment should be carried on during the development of the osseous systems.

There are many other conditions in which early treatment is imperative, especially in mal-eruption of the incisors, as the space necessary for their proper management will be taken up by the mesial movement of the erupting posterior teeth if treatment is delayed.

SECOND.—FAILURE TO ESTABLISH CORRECT OCCLUSION.

To correct an irregularity successfully and permanently, a good occlusion must be established and maintained, and in order to prevent an irregularity, a perfect occlusion must be established at the time of eruption.

Almost any degree of irregularity may be produced by the prevented influence of an erupting tooth or teeth; for instance, erupting bicuspids may occlude with the points of their cusps scarcely a millimeter to the mesial or distal of that which would produce normal occlusion, and each closure of the jaw drives them into greater abnormality. A slight force directing these teeth into their proper position at this time prevents a serious disarrangement.

I have here casts showing a case of inferior protrusion in the formative stage. The little girl was 12 years of age at the time these impressions were taken.

The inferior and superior incisors had erupted in such relation that when the jaws were in normal position the incisors occluded end to end, thereby preventing occlusion of the molars. In order to masticate her food she had acquired the habit of thrusting her jaw forward so the inferior incisors passed in front of the superior incisors, gradually inclining the superior incisors lingually and the inferior incisors labially.

The habit at this age had become confirmed, and her jaws at rest were held in this position.

Wearing an appliance for two weeks was all that was necessary to correct this case, and could have been corrected easier at an earlier period. No retaining appliance was necessary, as the restored occlusion prevents return to malposition. A couple of years longer would undoubtedly have produced such a deposit of osseous material in the glenoid fossae, or, more probably, such a lengthening of the inferior maxillary bone, as to seriously complicate, if not altogether prevent, its successful correction.

THIRD.—MOUTH-BREATHING.

Obstructions of the nasal passages such as adenoids are very common in childhood, even as early as the fifth year. These cause mouth-breathing, which, owing to the abnormal forces brought to bear on the forming process and teeth, is productive of malocclusions of a variety of forms usually characterized by a constricted superior arch with prominent or irregular anterior teeth, becoming progressively, more complicated as age advances.

There is probably no individual cause which produces so general and complicated an irregularity as mouth-breathing, or one which detracts more from the general appearance. A recognition of this condition, in its incipiency, and proper treatment by a rhinologist, may save the little patient from a humiliating deformity.

It is a lamentable fact that parents usually fail to notice this affliction of their children, attributing it to a cold or slight catarrh, and the physician, while he may be aware of the condition, has not, in the past, been duly impressed with its seriousness.

How important, then, that the dentist should recognize the cause of the growing irregularity in its initial stages and adopt means to prevent its continuance.

FOURTH.—PERNICIOUS HABITS.

There are many and characteristic malocclusions produced by certain pernicious habits of childhood, as finger-sucking, thumb-sucking and lip-biting. In these cases, also, the parents are sadly in need of information regarding their serious results if continued. Treatment of malocclusion, resulting from these habits, is futile unless the cause is removed, and this often requires much patience and perseverance.

If injury is to be prevented, these habits must be discovered and eradicated at an early age. We often see the habit of lip-biting in the adult, usually a nervous manifestation and characterized by prominence of the superior incisors with spaces between them.

FIFTH.—PREMATURE EXTRACTION OF DECIDUOUS TEETH

One of the most potent causes of malocclusions is premature extraction of deciduous teeth. Why and how this affects the positions of the permanent teeth and the proper development of the jaws is so familiar to all that repetition is unnecessary. The continued sacrifice of these teeth, with no attempt to preserve the space, however, seems to indicate that about 50 per cent. of the dental profession are not convinced of its pernicious effects or are extremely derelict in their proper professional duty. When we consider how amenable the deciduous teeth are to treatment, how little care is necessary to preserve them for several years, or how easily the space may be preserved by use of bands and wire, when it is necessary to extract prematurely, our course seems all the more inexcusable.

SIXTH.—EXTRACTION OF PERMANENT TEETH.

Malocclusions produced by the extraction of permanent teeth are, fortunately, decreasing in number, the profession generally recognizing the importance of their preservation, and especially the value of the first molars, which were so often lost. These molars, being the first teeth to erupt, are the key to the whole arch, and their position makes them, in point of service, the most important of all. If Dr. Angles' theory, that the superior first molars always erupt in the correct position, is accepted, we have a standard from which to determine the location and extent of our malocclusion.

The importance of this will be appreciated by those who realize how difficult it is, in some cases, to locate the point of abnormality and how often the wrong method of treatment is adopted.

I can not agree with the extremists, that we should never extract permanent teeth when treating irregularities but that better judgment is needed to decide when and what to extract is evidenced by the many cases we see in which one of the six anterior teeth has been sacrificed with disastrous results. We often see patients who have had a lateral extracted to make room for a cuspid, or a cuspid is sacrificed because it erupted labially, in both cases ruining the contour and general appearance of the mouth. Again, molars are sometimes fruitlessly removed to relieve a crowded condition of the incisors, although it is well known that teeth migrate mesially very readily, but move distally scarcely at all, without assistance. Cases are rare in which there are too many teeth, when properly placed, to produce the most perfect contour of the face or best occlusion, but when necessary to extract it should, almost without exception, be limited to the bicuspid teeth.

Are we not too ready to excuse many of our remissions by saying the parents objected to proper treatment? If parents understood the possible results, would they not be more anxious than we are to prevent them? Are we doing our duty in educating the public regarding the importance and advantages of a normal and perfect set of teeth, and the necessity of early and continuous treatment?

The dentist is, in general, underpaid for his services, and this is specially true in treating cases of malocclusion. The general practitioner has yet to recognize the exacting nature of the work, the time required, and that retention, after the treatment, is more important and more difficult than moving the teeth.

Recognition of these, and the other causes, by the general practitioner and an honest effort to prevent or remove them, would assist in reducing the number of cases of malocclusion in the years to come.

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DISCUSSION.

Dr. D. A. House, Indianapolis, Ind.: Orthodontia is not very much in my line of work, as I encourage it very little. The paper has some extremely good points in it, and probably the most notable, in my estimation, is the one in regard to the care of the teeth up to a certain age. I do not know of anything that makes me feel so badly as the extraction of a child's tooth long before it should be taken out. Taking my experience in that line of work, and it is something like this: That very often I have, and I know all of you have had, children presenting to you for the removal of some remnant or small portion of some one of the deciduous teeth. It might be removed very easily or simply lifted out, but I very frequently refuse to do anything, for the reason that I believe these teeth should remain in the arch as long as possible in order to hold the other teeth in position. Possibly only a small part of the root is left, and the child is probably 5 years old, and as the first molar erupts at 6 years, I believe this root should be left as long as possible, and I consider it worth while to leave that remaining portion of the root, if for no other reason than to hold that first molar in position.

Another thing I think is abused too often, although I do not believe it is resorted to as much now as it was a few years ago, and that is the extraction of some of the six anterior teeth; however, I agree with the essayist when he says that in some cases it is necessary to extract them. Men who have been making a study of orthodontia seem to think that there is hardly a case where it is necessary to make an extraction, although I believe that if all the cases are studied in all their phases, that there are cases in which extraction is necessary.

In the case of the child where an irregularity of that magnitude was corrected in so short a time as two weeks, it is wonderful to me, and by the taking of this case in time and resorting to the proper appliances, I do not believe the child will ever be able to appreciate what has been done for it. It is not only wonderful in view of the length of time, but also in the results accomplished, and I am only hoping that the time is near at hand when Dr. Jackson will be willing to take the patients that we who do not care very much about orthodontia will be glad to refer to him.

That brings up the subject of specialists. I consider that Dr. Jackson, who is making a study of the correction of irregularities of teeth, is more competent than I am, more competent than a great many of us are, to handle cases of this character.

Another reason is that the average dentist is busy and has all of his time taken, and conducts his practice on the appointment plan, and he cannot give the subject of the regulation of teeth the attention that it should have; and for that reason, if for no other, I think it would be better if we would honestly and conscientiously refer our patients to some one who will take the time and is capable of properly handling them.

Dr. R. I. Blakeman, Indianapolis, Ind.: I am very glad to have had the opportunity of hearing that paper, and I thank Dr. Jackson for it. It is exceedingly interesting and he has handled the subject in an interesting way. He has given us some good advice, but this is a very broad field, and I do not feel that I am capable of discussing it very thoroughly. One of Dr. Jackson's best points is in regard to the extraction of the teeth. I have a case now of a young lady, 23 years of age, who has quite a protrusion of the upper teeth. About two years ago they were regulated. I do not know whether they were brought back as far as they ought to have been or not, but anyway, she came to me to take the case. After a year or so I found that the molars were moved entirely. The arch was too narrow, and the second molars on both sides occluded lingually, and the lower molars ought to have been pushed out. I widened the arch, which helped very much, but when it came to retracting the anterior upper teeth, I found I could not do anything by retraction, because any stress at all applied there would pull the molars forward and apparently not affect the anterior teeth at all.

It was a surprise to me to see how easy that was done, in the case cited. It is no trouble to pull the posterior teeth forward, but it is quite difficult to pull the anterior teeth backward. As Dr. House brought out, it is very difficult for the practitioner to handle these cases, and I am glad to see the time coming when we can have specialists along this line of work. I hope Dr. Jackson will put himself in position where he can take care of the cases referred to him. It is very tedious work, and hard for the average practitioner to handle.

Dr. O. U. King, Huntington, Ind.: I remember last year, when this same subject was up for discussion on Dr. Bethel's paper, and we had about the same discussion that we have had today.

It seems to me that if the dentist was to put the same time and study on this kind of work that he puts in the work required to regulate and set up a set of teeth as Dr. Prothero taught us last night, we would be just as able to do good and successful work. I notice one man stated in some cases that he extracted the six-year molar. It appears to me that of all the teeth that he should save, this is the one, if we want the correct occlusion. We have got to save the six-year molar, and save that space. It also seems to me that we make excuses for our own laziness, when we might just as well study a little and reflect credit upon ourselves and the dental profession at large.

Dr. R. I. Blakeman, Indianapolis, Ind.: I want to say a word in defense of specialists. It is all very well for us to make regrets for our own efforts, but the field of dentistry is a pretty big one. We have specialists in all other branches. The paper heard last night was by a man who had qualified and fitted himself for the artistic setting up of artificial teeth, and now we should qualify ourselves along the line of orthodontia and make experts of ourselves. The tendency of the profession is to specialize. Dentistry covers a great big field, and I do not believe the man with a large practice has time to perfect himself in all of these lines. I am strong for the specialist.

Dr. D. A. House, Indianapolis, Ind.: I have been accused by a great many of being lazy, but it seems to me that I am a great deal like Dr. Blakeman. I do not believe that we can do all of these things and do them right. I put in about as many hours a day as the average man, and I do not then find time to do some things I would like to do. Some of these things I do not feel that I can do, and do them right; therefore, I would rather turn them over to a man who can, and if necessary I can produce evidence that I believe I am doing the right thing when I do that.

Dr. C. R. Jackson, Indianapolis, Ind.: I wish to thank the gentlemen for their kind words. I agree, to a certain extent, with all of them. I think that Dr. House and Dr. Blakeman are very right in their ideas when it comes to practitioners in the city, but to the man who is practicing in a small city or town, it is practically impossible for him to send his patients away. Before I moved to Indianapolis I spent three years practicing in a town of 1500 inhabitants, and I know some of the conditions that a dentist has to contend with in small places.

It seems to me that Dr. King is right in his view that a good many do not stop to consider this subject, merely pass it up, seeming to lose sight of the fact that it is one of the most important subjects connected with dentistry. If you have an irregular set of teeth, you know the mouth is very prone to decay—you have no doubt noticed that—while you have comparatively very little decay in a regular set of teeth.

The specialist is all quite well for the man in the city, and I think one trouble with the man in the country is that he does not get the fees; but if you will explain to the parents what is to be accomplished, and how the child is to be profited, it seems to me that they would be willing and glad to pay for your time and trouble devoted to the case.

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DESIRABLE DENTAL LEGISLATION.*

George Edwin Hunt, M. D., D. D. S., Indianapolis, Indiana.

In a moment of temporary aberration, due to a persuasive letter from your secretary, Dr. Meeker, I promised to write a paper for this body, on "Desirable Dental Legislation." Now that the meeting is close at hand, and the time has arrived for me to "get on the job," I find my mind as devoid of ideas regarding desirable dental legislation as it is possible for it to be, and its owner run at large. However, I have a thought or two on dental legislation; whether desirable or not, I leave for you to decide. By "desirable" dental legislation, I take it, is meant legislation whereby reciprocity and interchange of license may be brought about between the states, or a license issued by some national board or commission to qualified individuals, which will empower them to practice in any state.

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*Read before the Northern Indiana Dental Society, Peru, Ind., September 13, 1907.

This seems to be the legislation most in the minds of the profession at present, and it is to a consideration of this my paper will be mainly directed.

PROPOSITIONS OFFERED.

Some months ago a respected contemporary in Buffalo, Dr. Charles S. Butler, read a paper before the National Dental Association in which he offered four propositions for consideration:

"(1) The abolition, by gradual absorption and elimination, of all our present schools, and the substitution therefor of departments in strong universities, with faculties selected by the profession itself, and for which each teacher shall be chosen with due consideration as to his known fitness to fill the position he is to occupy."

This proposition has nothing to do with dental legislation, and I shall therefore pass it without comment.

"(2) The abolition of state examining boards as being superfluous and of doubtful utility in any system of professional education."

Now, Dr. Butler is no anarchist; he has no desire to tear down and offer nothing in the way of building up, so I will quote his next two constructive propositions and consider these latter three together:

"(3) The creation of a national commission, with plenary powers in regard to the location of schools, curriculum of study, and entrance requirements, as well as general oversight of their affairs.

"(4) The diplomas of said schools, when granted in course and indorsed by the national commission, to be accepted as a license to practice in any state or territory of the United States."

In the discussion of this paper, but one man seemed to reach the milk in the cocoanut—Dr. C. W. Rodgers, of Boston, Mass. He said, in part:

"If you go before the state legislatures and ask for the elimination of the state examining boards, and ask their approval of a national commission such as the essayist desires, you will run across a hard proposition. You would aim at destructive legislation and interference with state rights, of the maintenance of which the state legislatures are individually very jealous.

"The proposed legislation would be destructive because its intent is contrary to the genesis of our institutions, and if enacted would tend to undermine our whole democratic system of government. Why, gentlemen, it is possible at the present moment for a boy to ascend to the presidency of the United States without having seen the inside of a grammar school, and you would ask legal aid to have conditions such that the boy with the ability to rise to the presidency could not rise to the practice of dentistry unless he be a graduate of a dental school."

STATES' RIGHTS.

In my opinion, Dr. Rodgers reached the milk in the cocoanut when he spoke of states' rights. Some 43 years ago, after four years of fighting and an immense loss of property and life, it was decided that no state had a right to secede from this Union, but that decision has never interfered with other vested rights of the states, and the right of policing within her borders—what are known as her "police powers"—is an absolute right guaranteed by the Constitution of the United States.

There are two ways by which a national commission, with the powers Dr. Butler desires, might be created. If all the dentists in the United States, and everybody in the Union who afterward contemplated entering on the practice of dentistry, should mutually agree to create and abide by such a commission, the thing could be done. But that is a manifest impossibility. Such a commission, even if so created, would have no legal existence and its edicts and acts would only be of force by the unanimous and voluntary consent of every one interested. To hope to get the consent of all dentists now in practice, and the further consent of all future dental students, to observe the rules laid down by such a commission is beyond reason, as I think you will agree. The whole organization would probably go to pieces on the question of the first member of the commission. The only other way such a commission could be created would be by act of congress. Let us look into that a bit:—

Bryce, in "The American Commonwealth," Part I, Chapter XXVII, says:

"The powers vested in the national government alone are such as relate to the conduct of the foreign relations of the country, and to such common national purposes as the army and navy, internal commerce, currency, weights and measures. and the post-office, with provisions for the management of the machinery, legislative, executive and judicial, charged with these purposes.

"The powers which remain vested in the states alone are all the other ordinary powers of internal government, such as legislation on private law, civil and criminal, the maintenance of law and order, the creation of local institutions, the provision for education and the relief of the poor, together with taxation for the above purposes.

" * * * * * The powers vested in each state are all of them original and inherent powers, which belonged to the state before it entered the Union. Hence, they are prima facie, unlimited, and if a question arises as to any particular power, it is presumed to be enjoyed by the state, unless it can be shown to have been taken away by the federal constitution; or, in other words, a state is not deemed to be subject to any restriction which the constitution has not distinctly imposed.

"The powers granted to the national government are delegated powers enumerated in and defined by the instrument which has created the Union. Hence the rule that when a question arises whether the national government possesses a particular power, proof must be given that the power was positively granted. If not granted, it is not possessed, because the Union is an artificial creation, whose government can have nothing but what the people have by the Constitution conferred. The presumption is, therefore, against the national government in such a case, just as it is for the state in a like case. Congress must not attempt to interfere with the so-called "police power" of the states within their own limits. So when a statute of congress had made it punishable to sell certain illuminating fluids, inflammable, at less than a certain specified temperature, it was held that this statute could not operate within a state, but only in the District of Columbia and the territories."

If any one wishes legal decision upholding the statements advanced by Mr. Bryce, they may be had by the score from any competent lawyer. Congress can and has passed a pure food law, but it is only operative as food is transported from one state to another. Congress **can** say that no impure food manufactured in Indiana may be shipped without the state, but it **cannot** say that impure food manufactured in Indiana may not be sold and consumed in Indiana. For years government inspectors have been located at the large meat-packing establishments in Chicago, Kansas City, Omaha, and elsewhere, and all meats shipped from those points to points without the state must be approved by the inspectors, but meats condemned by the government inspectors in Chicago may be sold in Illinois, provided such sale does not violate an Illinois statute, and even if it does so violate an Illinois statute, the government inspectors have nothing to do with the matter—the state authorities must prevent its sale. That is one form of the so-called "police powers" of each state, and this police power is one that never will be abrogated. It is a basic principle in our government.

The regulation of the health and well-being of the citizens of each state by the creation of boards of dental and medical examiners, of examiners in pharmacy and a state board of health, is a direct exercise of the police powers of the state. State boards are created to protect the citizens of the state from unskillfulness, incompetency and dishonesty. Many of our profession seem to have had the notion in the past that dental boards were created for the protection of those practicing the profession of dentistry, but such a conclusion is entirely erroneous. The state dental board is the outgrowth of the so-called police power of the state, and its only legitimate function is the protection of the people of the state from incompetent and unskillful practitioners.

LEGAL NATIONAL COMMISSION AN IMPOSSIBILITY WITHOUT CHANGING THE CONSTITUTION OF THE UNITED STATES.

In view of the foregoing, it is self-evident that any prospect, immediate or remote, of a legal national commission which shall have power to regulate dental schools, dental practitioners, or those desiring to enter the dental profession, is a manifest impossibility, without changing the Constitution of the United States. And I am confident that not even Theodore Roosevelt, the foremost advocate of federal control and centralization of power, many of whose acts lead one to believe him capable of saying, "What's the Constitution between friends?"—I do not believe even he, with all his impetuosity, would advocate the dissolution of the Constitution of the United States that the dental profession may have a national board of dental examiners. I have dwelt on this matter at some length, and yet but briefly after all, because the subject of national regulation of our profession is constantly being advocated by some one, without due consideration of the question.

WHAT IS THE BEST DIRECTION IN WHICH TO WORK?

Well, granted that a national commission is impossible, what is the best possible direction in which to work? A uniformity of dental laws has been suggested—an idea as chimerical as that of a national commission. If any of you believe it possible to get a law enacted as it is introduced, speak now and we will give you a perpetual job on the state association legislative committee, or forever after hold your peace. All legislation is the result of compromise, and in compromising each side must yield at varying points. For that reason alone, and there are others, uniform dental legislation is an iridescent dream.

The latest national commission found favor with the National Associations of Faculties and Examiners at their recent meetings in Minneapolis, and received the indorsement of the National Dental Association. The resolution passed calls for the appointment of a committee of nine, three to be named by the National Dental Association, and three each by the faculties and examiners, which committee shall investigate and report to these three bodies at their next annual meetings, regarding the possibility of creating a national board of examiners, whose examination certificates shall enable the holder to obtain a license to practice in any state of the Union without further examination. If this committee starts out with the thought that a national board of dental examiners can be created by act of congress, they will save themselves much time and trouble by consulting some good constitutional lawyer and having him tell them what I have just told you. It cannot be done. I am of the impression that the resolution referred to conditions in Canada, where there is a national board composed of representatives from the various provincial boards. Any one having passed the examination in one province may apply for examination by this composite board, and, if he be successful, be licensed to practice in any province in Canada. I am not familiar with the constitution of our northern neighbor—although I believe it to be robust—but it is a safe guess that it differs from the Constitution of the United States. And even in Canada, the board of each province still exists, and no one is examined by the composite board who has not previously passed the examination of a provincial board.

A national board of examiners created by appointment by the three associations named above would have no power to enforce its edicts in the various states. It would have no legal status, and recognition of its powers would be only such as was voluntarily accorded by individual state boards, and not a dental law in the United States today authorizes the State Board of Examiners to accept the examination of such a national board in lieu of their own. And furthermore, while some states, notably New Jersey, Indiana, New York and Pennsylvania, have sections in their laws legalizing recognition, under certain conditions, of licenses to practice issued by boards of other states, it is extremely doubtful whether any legislature would enact a law permitting its state board to accept credentials from an unauthorized body such as this national board would be. It is true, various state boards might secretly agree with such a national board that candidates coming with the endorsement of the national board would receive but a "phony" examination, an examination that was only a form and designed to evade the spirit of the law, but that would not be a very dignified position for either the national board or the state boards involved.

All of the above may seem pessimistic, but the truth is often pessimistic. All talk of a national board or commission, which will have legal authority to examine candidates and have their dictum officially recognized by the various state boards of the Union, is veritable moonshine. Desirable legislation along the line of interchange of license must come from legislative enactment authorizing the state boards, with certain restrictions and conditions, so to do. This is gradually being accomplished. It is as inevitable as eternity, but I hope not so far off. So much for this part of the subject.

UNDESERVED HARDSHIP.

Whether legislation is necessary or not, I am unprepared to assert; but one feature, or rather the lack of one feature, in our dental laws frequently works much undeserved hardship. I refer to the requirement that all applicants, the young man just from college and the middle-aged or elderly man who has been years in the conduct of a successful practice, shall take the same examination, under the same conditions. A young man just graduated is far more competent to successfully pass a state board of examination than a practitioner with a record of years of successful practice. But which of the two is best qualified to care for a practice, the youngster with about 14 months of practical infirmary work or the practitioner with years of experience behind him? I am well aware most boards take this into consideration in their examinations, and govern themselves accordingly, but not all boards do so. I have in mind a practitioner who had successfully conducted a high-class practice for some 12 years, in one of our Indiana cities. To my personal knowledge, he was a good dentist, an ethical man, a member of the state association, and better fitted professionally to care for a clientele than the average dentist. It became necessary for him to remove to California, for reasons which have nothing to do with this paper The California board turned him down twice, if not three times, and compelled him to tutor on anatomy, physiology. chemistry, and kindred subjects, for a year and a half, before granting him a license to practice. And yet, to my mind, that man was infinitely better qualified to care for a practice than younger men just out of college, and I will even venture the opinion that he was as competent and able a dentist as any of the members of the board who examined him.

Desirable dental legislation! A dominant American characteristic is the desire to pass more laws; a belief that all the ills of the body politic can be corrected by legislative or congressional enactment. If I had my way, the legislature would only meet for 60 days every five or six years. We have laws enough, and more than enough. What we need is law enforcement, not more laws. The dental laws of the various states are generally good. The only legislative action I could suggest is to render them enforceable—if there be any doubt concerning that—and to give the various boards the right, under proper restrictions, to accept the examinations of other state boards in lieu of their own.

EXCHANGE OF PRACTICAL IDEAS

[This department being an exchange of practical ideas, it depends upon our readers furnishing material to keep it going. Just a few practical ideas from each subscriber will make it of mutual benefit and practical worth. Are you willing to do your share? Help the good cause along by sending the editor a few practical suggestions. Send something today. Address Dr. L. P. Bethel, 1255 Neil Ave., Columbus, Ohio].

A GOOD INVESTMENT.

By S. D. Ruggles, D. D. S., Portsmouth, O.

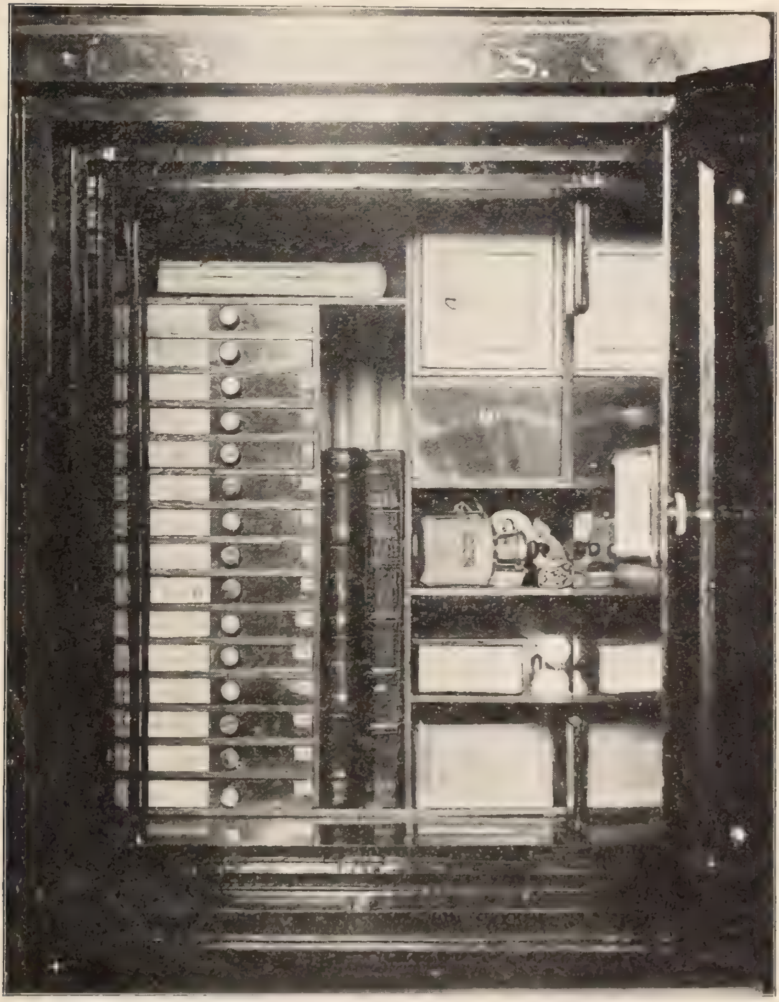
The increasing frequency of dental office robberies excited my curiosity, and in looking over the reports of the past six months in The Summary, some rather startling facts have been brought out. The thefts have occurred from Maine to Colorado and number 72 in all.

The average loss of 67, who gave the amounts, is $73.25 each, or $4,875 in total. This means an average loss of $800 per month to dentists who can ill afford it. Some offices were not only robbed, but set on fire to cover the deed. For those who would escape this inconvenience I have a remedy—a safe.

Several years ago I bought a 1,000-lb. fireproof safe. It is practically two feet square, two and a half feet high, and arranged as follows: The internal dimensions are 12x15x20 inches, and offer ample space for all teeth and materials besides ledgers, and drawers for insurance policies, deeds, etc. On the left are 15 drawers for teeth, each 5½x12 inches and ⅝ of an inch deep, and will hold from 16 to 20 sets of teeth on the strips used by manufacturers. The entire capacity is 300 sets of teeth, considerably more than the average dentist possesses. In the center is a space for two ledgers and a day book.

To the right are pigeon holes for foil box, a drawer for plate and solders, alloy, duplicate instruments, etc.

Such a safe, with its six inches of fireproofing, together with the cabinet work to order, will not cost to exceed $50.



You will find it a great convenience and a profitable investment for laboratory and office.

I might add that some manufacturers have appreciated the need of the dentist for safes, and as the ordinary safe is not especially attractive, the plan is to conceal them in the dental cabinets and arrange their interior with particular reference to needs of dentists.

REPAIRING BRIDGE-WORK.

By M. M. Rubright, D. D. S., Hartville, O.

Of all the perplexing problems which confront the busy dentist, there is none more distressing than to have to replace a facing on a delicately-constructed bridge. The facings most likely to break, either in soldering or in regular use, are the centrals, laterals and cuspids. To use detachable facings for these teeth, you can largely eliminate this difficulty, because of the convenience in repair. In this respect, prevention is more than cure. But unfortunately they are seldom detachable facings which break. But when you have a patient come into your office, with a large bridge with one or more facings broken off and others on the bridge in danger of being broken off, in repair, it causes one to hesitate because of the possibility of getting himself into a more complicated mess. As a general rule, where the ordinary bridge tooth breaks off, it is under great strain from the forced occlusion of the teeth coming in contact with it. So if this is the case, the principle which I wish to describe will all the more readily appeal to you. My experience has proven to me the system of bridge repair in the mouth, such as Bryant's and others, can not be relied upon in all cases, and in many cases it is only temporary in its effect. and very often causes more bother and work than to remove the bridge. With a crown slitter, or chisel attached to your automatic mallet, remove the bridge, using as much care as possible to make it easy to repair the cut edges of the crowns. Always slit the crowns on the back when possible. Cover your facings remaining on the bridge with an investment material, only enough to protect them from the flame in soldering. Now solder your crown in the ordinary way with the same karat of solder or a lower index of solder than the body of the bridge. If you have the broken facing and can use it, this is best to use as a form in making a facing of gold. Or use a porcelain facing, which conforms to the space on the bridge and get an impression of it in moldine. Pour your fusible metal into the impression and get a cast. Take a piece of 22k. 30-gauge gold plate and swage a facing over the die.

Trim gold facing until the edges fit the intended space for it on the bridge. Some die plates make provision for these cases, and you can swage a facing same as a cusp for a crown. Or they may be purchased from the dealers and are known as Nelson's facings. Before fastening your facing in place paint the backing of the bridge with muriatic acid cut with zinc. (Cut fine strips of zinc into muriatic acid and allow the acid to dissolve the zinc). Fasten facing securely in place with soft binding wire or soldering tweezers. Solder in place with tinfoil solder, or what is commonly known as tobacco foil, melted in a crucible, using the muriatic acid cut with zinc as a flux, while melting same. From this ingot of solder cut small pieces and drop into facing from the open back to same. Hold over alcohol torch to melt solder. This solder requires only a very small amount of heat to melt it, scarcely more than enough heat to boil water. So care must be exercised or you will burn a hole through your facing if you keep it in the heat too long. The solder combines nicely with the metal parts. After you have soldered the edges of the facing to bridge, fill the body of the facing with amalgam. Don't cut the pins of the old porcelain facing off, but leave them on, as they will be a good support to solder to when soldering the facing, and will aid you more than be in your way. By carrying out this process you will never check a facing and will never need to repair the same facing again.

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GOOD CLEANSER FOR THE HANDS.

By Dr. R. L. Hesser, Louisiana, Mo.

I find that a box of Old Dutch Cleanser kept in the laboratory is the finest thing yet for removing dirt and grime from the hands. It is perfectly harmless.

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A TRYING CASE—ANSWER.

By Dr. W. C. Carr, Seattle, Wash.

I see in the July number an inquiry by Dr. Pelton about a trying case. I will answer his appeal in this way: His patient causes her trouble with her tongue and muscles of throat. What I would do in such a case is this: I would tell her I must have the price cash down before I put the teeth in her mouth; then I would make her an upper plate that she could not remove; then let her gag. She would soon get over it.

I would not use any patent suction.

REPLANTATION IN A CASE OF PYORRHEA ALVEOLARIS.

By E. T. Hedlund, D. D. S., New Orleans, La.

In my description of this treatment, I do not expect to enlighten the profession with something new; rather I will endeavor to show the practicability of combining different principles and methods of merit and fully understood by the profession, in the treatment of that obstinate disease, pyorrhea alveolaris.

Miss B., aged 22, suffering from an inferior central incisor. Diagnosed the case as pyorrhea alveolaris, suspecting rheumatic diathesis, which was admitted. She wanted the tooth extracted, however, preferring a bridge to such provocation. I found the tooth elongated and very loose, with a slight protrusion of all the other anterior teeth.

I removed the calculus as best I could, but it and other treatment was of no avail, and I had almost given up hope when I thought of replantation. The idea was suggested, warning her that failure was possible, and I was given full power to do as I thought best.

As the teeth were protruded enough for ample separation, I experienced no difficulty whatever in making bands for the central and lateral incisors. This was done with 22k., 32-gauge gold plate, about one line in width. I then extracted the afflicted tooth, which, as I have said, was loose and somewhat elongated.

After a thorough removal of all tissue attached to the neck and pericementum, I filled the root, finishing the apex with cohesive gold, carefully polishing same, and other rough places on root, including the removal of some, though very little, serumal calculus.

I now fitted a band similar to that of the other teeth, to the extracted tooth, and by no other means than a pair of tweezers, soldered the bands together. After fitting the central band to the tooth, I washed the tooth in a solution of bichloride of mercury, 1-500, and then completed the relative position of the bands by fitting them to the other teeth. My splint was now perfect, and after removal (and polishing) I thoroughly aseptized the alveolus and tooth, completing the operation by cementing the appliance in position.

There never was any suppuration, and in one week all of the surrounding tissues were normal and healthy, and remain the same at this writing nearly three months later. I consider the operation my most successful treatment of advanced pyorrhea alveolaris.

SUGGESTIONS

A PRECAUTION BEFORE OPERATING.

J. F. Wallace, Canton, Mo.

The use of alcohol before applying the rubber-dam cannot be urged too strongly. Accumulations heavily laden with bacteria are found in the mouths of most patients about the necks of the teeth at the gum margin. If the dam is applied without removing and destroying the germs in these accumulations, infection of the gum is very often the result, and many cases of pyorrhea might be traced to such negligence. It should also be used to wipe the tooth off after the dam is applied, as the mucus provides an unclean surface over which to work, and I think hand instruments are less inclined to slip when used upon a tooth which is thoroughly cleansed of mucus and other accumulations found there. If you use the ligature upon the case, as most dentists do, you are almost sure to force some irritating substance beneath the gum; if you do not use the ligature, the rubber holds very much more tenaciously to the tooth when cleansed with alcohol.—Dental Brief.

INVESTMENT PLASTER.

H. A. Cross, Chicago.

Investment plaster of the most reliable and inexpensive kind can be made by any dentist from the following formula. Quantities are by measure, not by weight:

Good quality of ordinary dental plaster	2 parts
Pulverized mica	1 part
Marble dust, pulverized fine	1 part

This combination, if carefully and thoroughly mixed, will be found specially adapted to every department of the dentist's laboratory. While experimenting, thinking I had perfected the formula, I prematurely gave out a few samples which did not give satisfaction, but this formula will be found thoroughly reliable. The mica and marble dust should both be pulverized as fine as flour for the finest class of work. This plaster is of the quick-setting kind. The stiffer any investment plaster is mixed the quicker it will set.

Pulverized mica can be obtained from the United States Mica Mining and Milling company, at Micanite, Colorado, main office in Chicago, Ill.—Dental Review.

ABANDONED THE USE OF BANDS.

J. W. Wassall, Chicago.

I have entirely abandoned the use of bands. Even when a band is fitted perfectly, it still must project. I do not use them for incisors or canines, any more than I do for molars or bicuspids, for by this means I eliminate every serious defect that the banding method has. I removed a crown the other day that I made myself about four years ago, and it was a creditable effort. I supposed the pulp had died from irritation due to a gradual decay, but when I removed the crown I found that caries had begun on the smooth surface below the band edge. Caries had developed even under the most favorable circumstances.—Cosmos.

TO GET THE ARTICULATION IN BAKING A PORCELAIN BICUSPID OR MOLAR CROWN.

H. H. Sullivan, Kansas City, Mo.

Make whatever class of framework you desire for the case in hand. Adjust the same to stump or root as the case requires. Take any soft, clean wax, heat to a soft mass a little larger than crown-to-be, place this over the framework and direct the patient to close the teeth firmly.

This will give you what is termed a bite; see that the bite fills space closely between the anterior and posterior teeth, approximating the tooth to be crowned, and that the opposing teeth imbed their cusps in the wax. Remove the bite and framework. If they separate, adjust the frame to the wax in the same relation as when in the mouth. Now take the lower half of No. 1 or No. 2 fire clay slide (S. S. W.). Mix whatever investment you please; I prefer Brophy's Imperial. Fill the framework side of the bite and the cup side of the fire clay slide, place the two together and lay aside to dry.

You will note that the bottom of these slides has three little round feet; they will be useful; watch them.

When the investment compound has set, take a small crown articulator and with plaster fasten this bite and fire clay slide in the articulator, first putting some kind of separating medium on the feet and exposed part of the slide. When the plaster has set the same as in any crown case, heat the wax and open the case.

The slide is easily removed from the plaster. Burn out the wax and begin the process of baking the porcelain. When you arrive at the point of determining the articulation, place the tray (when cool enough) back into the articulator; now add sufficient porcelain body to complete the articulation and knuckle against the adjoining teeth. Take out of the articulator and rebake. You can repeat this as often as needed until the work is complete.

Did you see where the little feet do their work? They tell you just where to set the slab in the articulator.

This same fire clay slab is exceptionally useful when large contour gold inlays need to be made where an articulation is desired outside the mouth. Use an articulator as just described.

The reason I use wax for the bite above mentioned is this: I can burn it out without a residue, while modeling compound causes me trouble by having to use water to soften it, the dry heat making it so sticky.—Western Dental Journal.

◆

EXTRACTING ABSCESSED TEETH.

I have found by experience that the extraction of abscessed teeth is not a dangerous operation if the oral cavity is swabbed with an antiseptic wash before and after. Always take precaution after the tooth is out to give the socket a thorough cleansing. This is where many operators make their mistakes.—Odontoblast.

A PLEA FOR OXY-CHLORIDE OF ZINC.

Dr. C. Edmund Kells, New Orleans, La.

The editorial in the June issue has just been read, and I am amazed at the following sentence which occurs therein: "as well, perhaps, as the oxy-chloride of zinc, still used by some in root-canals."

As a persistent user for 30 years of the oxy-chloride of zinc, I can not allow such a statement to pass unchallenged.

As a root-filling, what material, I would ask, equals the oxy-chloride? This material sets without any shrinkage, is highly antiseptic, and a root-canal which has been thus filled for 20 years may be extracted and split open and found sweet and clean.

Has the reader had any occasion to remove an oxy-phosphate filling of any size which has been in situ for a year or more? And if so, did he not find that it "smelled to heaven," as someone has exprressed it? And furthermore, did he not observe the condition under this porous filling worse than when it was inserted?

The oxy-chloride makes a dense, hard filling—as hard as adamant and absolutely impervious, and under the same conditions as just related, the conditions of the tooth would be found improved. These statements are beyond contradiction.

Now, at the end of 30 years' persistent use, what do I find? If experience, backed up by careful observation and full records count for anything, I find the following:

First—That for partly erupted teeth in which faulty enamel formation is found and cavities exist at this early stage, nothing equals the oxy-chloride of zinc as a filling material. While it will not prove a durable filling, and must be carefully watched and renewed when necessary, the chloride of zinc has a chemical action upon the tooth substance and for its good.

Second—In molars and bicuspids, which erupt with more or less large areas of soft brown spots in the enamel in which caries appears, all the discolored tissue need not be cut away, but only the cavity proper, and then filled with oxy-chloride of zinc, and the decay will be absolutely stopped for years.

Third—Minute approximal cavities which occur in the incisors almost immediately after their eruption, and, in fact, often before they are completely erupted, may be preserved as minute cavities for years and years—12 or 15—by the careful nursing with oxy-chloride of zinc fillings. Can such a result be obtained in any other way?

Fourth—In very deep cavities it is not necessary to remove all the decay from the bottom. In these cases it is only advisable to remove what decay is absolutely necessary—the margins of the cavity being made perfect, a thick cream of oxide of zinc and creosote (Morson's) is floated over the remaining decay—and dried with spunk or paper and the cavity then filled with oxy-chloride of zinc. A year later that filling may be removed and a perfectly satisfactory condition found beneath.

The mummified decay may then be removed, two-thirds of the cavity be then filled with the oxy-chloride (with or without the creosote-cream, as may be advisable), and a thin veneer of gold or amalgam, as is deemed best, completes the operation.

Here is a real tooth-saver. There may be some material of which I know nothing that will accomplish the above-mentioned results, but it certainly is not the oxy-phosphate of zinc. The oxy-chloride forms a dense, hard, impervious and unshrinkable filling, and one which is conspicuously beneficial to the tooth substance in contact with it.

Hard as it is, the oxy-chloride is more or less soluble by the fluids of the mouth, and can be rarely looked upon as anything but a temporary treatment when exposed to the action of the saliva, though many exceptions to this are found, and I have very many fillings which are still perfect at the end of 10 to 15 years' use.—Items of Interest.

METHOD OF USING INLAY GOLD IN MAKING AN OPEN-FACE CROWN.

W. H. Hoyl, D. D. S., Dawson, Ga.

I believe we all agree in saying there are cases when the open-face crown is clearly indicated, the great hindrance being in making a perfect adaptation. Follow the details of this method carefully, and I believe you will be pleased with the result.

Take the impression of the tooth to be crowned in plaster, producing a plaster model; trim model at cervical margin carefully with view of having finished crown extend under free margin of gum. Make impression in mouldine and run model in Melott's metal. Polish metal model with cuttle-fish disk. Take inlay gold (preferably 24-k. one one-thousandth), cut a piece sufficiently large to cover the labial, and one for the lingual surfaces, cutting it large enough for overlap of one-thirty-second of an inch in interdental spaces. With the assistance of slightly softened modeling composition you can readily approximately adapt this inlay gold to the metal model. For more perfect swaging, place the two sides of the crown in position on the metal model, and over this place the metal ring, which comes with all mouldine outfits, and it being of same size, rests firmly upon edges of model. Fill the ring flush with wet cotton, and pack it down with a wooden piston (home-made), tapping it lightly with an ordinary hammer. Remove cotton and you will find the two sides of the crown stuck together, and they can be removed from metal model without disturbing this relation. Now place the perfectly swaged crown on asbestos mat, and, with a small piece of 22-k solder, unite the two sides. Place on plaster model and cut out face with carborundum stone. Try on natural tooth and with oval burnisher adapt margins as you would in case of making an inlay filling. We now have a perfect matrix of the tooth to be crowned. Invest it by means of filling the crown, or matrix, with investment material, either fine marble dust or sump, bringing to a heat, and flow 22-k. solder over the entire surface. Finish just as you would an inlay filling.—Items of interest.

A METHOD OF MAKING RETAINING-PITS IN PORCELAIN INLAYS.

1. Take the impression of the cavity in the usual way and invest the matrix.

2. Spread a little porcelain body, moistened in absolute alcohol over the floor of the matrix.

3. Cut a wedge-shaped piece of gold from a portion of Solila gold as it is obtained direct from the manufacturers and not prepared in any special manner, by means of the instrument made for this purpose.

4. Place this wedge-shaped piece of Solila on the floor of the matrix and flow around it the porcelain body.

5. Add successive layers until the contour is attained, and the inlay is complete. To remove the gold:

1. Strip away the matrix from the porcelain.

2. Drill into the gold, which will be seen shining through the thin layer of porcelain on the under surface of the inlay, using a slowly-revolving round bur in the dental engine, making the opening free.

3. Pour a little aqua-regia (equal part nitric and hydrochloric acids) into a test tube, place the inlay in it, and gently warm over a flame until free bubbling occurs at the opening into the gold.

4. When the bubbles cease, which usually happens in four or five minutes, carefully remove the inlay, and the gold will be found to have disappeared, leaving a large wedge-shaped cavity for retention.—Dental Record.

GOLD INLAYS WITHOUT HEAT OR MATRIX.

W. L. Reed

For labial and buccal cavities prepare cavity as if for any other inlay. Take impression of cavity with cone of Perfection Modeling Compound; while still in the tooth under firm pressure, chill with a syringe of cold water; carefully remove and give impression a very slight coating of vaseline. Make the model of best quality of cement, well mixed and quite stiff and perfectly pressed to impression. After the cement has set, slightly warm and separate. For convenient base invest in plaster and fill the cement model with your favorite form of fibre gold, polish flush with cement and you will have a perfect gold inlay.—Stomatologist.

TO CLEAN WAX.

Thos. Fletcher.

After melting and straining boil the wax for 20 minutes in a solution composed of half-ounce oxalic acid to each quart of water. Old wax may be made cleaner than new. Two drops of oil of cassia added to each pound keeps wax aseptic and renders it less unpleasant to the patient.—Pacific Medical Journal.

OBITUARY

DR. GEORGE L. PAINE.

The death of Dr. George L. Paine, the father of Mr. Elmer E. Paine, of the Associated Press, occurred in Washington, D. C., Oct. 18, 1907. He was 85 years of age. The immediate cause of death was uremic poisoning. Dr. Paine's wife died a year and five months ago, and he had never fully recovered from the shock.

Dr. Paine was born in Montgomery county, Ohio, July 3, 1822. He spent all of his early years on a farm, and there laid the foundation for the sturdy manhood that characterized him. He received his early education in the district schools, and then by teaching obtained means to attend the Miami University. He was unable, on account of lack of funds, to continue at the university, and for that reason did not graduate. He studied dentistry and was graduated from the Ohio Dental College and began the practice of his profession in Dayton, O., subsequently removing to Xenia, O., where he was in active practice for nearly half a century, the actual time of his practice there being a little more than 49 years.

Dr. Paine was naturally a student, and his attainments in the realm of scholarship were marked. He was a linguist of rare ability. For more than 40 years during the latter part of his life he daily read the Latin classics, and he not only read but spoke that language fluently and as readily as he did English. He had many friends among eminent Latin scholars and often conversed with them in the original Latin.

In his profession Dr. Paine was recognized throughout the Ohio and Mississippi valleys as being one of the most distinguished practitioners of his time. For many years he was a member of the Mississippi Valley Dental Association and of the Ohio State Dental Association, and always took a prominent part in the proceedings of those bodies.

Dr. Paine retired from active practice about 15 years ago, and soon afterward removed to Akron, O., where he joined his son, with whom he has made his home ever since. He had two children, but one son died many years ago, Elmer E. Paine, of Washington, D. C., being his only living child.

His remains were taken to Xenia for interment.

SOCIETY

TO THE ALUMNI OF THE NEW YORK COLLEGE OF DENTISTRY.

Any alumnus seeing this notice, is kindly requested to send his name, address and year of graduation to the undersigned.

MAURICE GREEN, D. D. S.,
1190 Lexington Ave. New York City.
(Acting for the Alumni Association of the N. Y. C. D.).

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Sioux Falls, S. D., Tuesday, January 14, 1908, beginning at 1:30 p. m. All persons desiring to take this examination must make application to the secretary and send fee of $10 at least one week prior to the above date. No candidates will be received for examination who do not make application as above specified. Applicants are required to bring dental engine, filling materials, articulators, teeth, and all appliances necessary to do crown and bridge-work. G. W. COLLINS, Sec'y.

AMERICAN DENTAL SOCIETY OF EUROPE.

The thirty-fifth annual meeting of the American Dental Society of Europe will be held in London, Eng., beginning July 31 1908.

Notice is given thus early that American practitioners may include this meeting in their European itinerary.

Any information will be gladly given by writing the undersigned.

J. W. GALE, Hon. Sec'y,
79 Hohenzollern Ring. Cologne, Germany.

AFTERMATH

In Florida for the Winter.—Dr. Frank Woodbury Smallwood, of Patten, Me., will spend the winter in Florida.

Dental Examinations, Michigan Board.—Twenty-one of the 32 candidates who appeared before the Michigan State Board passed.

Fire damaged the office of Dr. M. G. Munro, of Gardner, Mass., to the extent of about seven or eight hundred dollars, Oct. 21; insurance, $400.

Dentist Is Fined.—A dentist was arrested in Covina, Cal., on a charge of practicing dentistry without a license. He pleaded guilty and was fined $50.

Hartford (Conn.) Dental Society elected the following officers: President, Dr. E. H. Munger; vice-president, Dr. A. A. Hunt; secretary, Dr. H. E. Snow; treasurer, Dr. William N. Butler.

Town Without Dentist.—New Paris, Ind., is without a dentist. Dr. Robert Wilcox, the only dentist, has engaged in other business. It is the first time in over 50 years that the town has been without a dentist.

Grand Rapids (Mich.) Dental Society.—Officers elected were: President, Dr. J. Ward House; vice-president, Dr. E. J. Chamberlain; secretary, Dr. C. A. Burbridge, and treasurer, Dr. H. M. Moorman.

Southwestern Iowa Dental Association.—Officers elected were: President, Dr. F. S. Schadel, of Red Oak; vice-president, Dr. J. W. Powell; secretary, Dr. T. H. Will, of Red Oak; treasurer, Dr. G. E. King, of Villisca.

Marriages.—Dr. D. W. F. Schwenker, West Point, Neb., and Miss Ida Hoeberg, Burlington, Ia.; Dr. Ernest C. Viton, Goldsboro, N. C., and Miss Annie K. Harper, Wilmington, N. C., Oct. 17; Dr. Albert B. Hart, New London, Conn., and Miss Effie M. Kerr., Hartford Conn., Oct. 23; Dr. Charles H. Dunham, New Brunswick, N. J., and Miss Emma L. Beekman, New Brunswick, Oct. 30.

Dentist Fined for Practicing Without a License.—At Santa Ana, Cal., a dentist was found guilty of practicing dentistry without a state license. The jury recommended the minimum fine, $50.

Woman Dies in Dentist's Chair.—A woman in Bath, N. Y., died Oct. 14 from the effects of chloroform. She was put under the influence of the anesthetic preparatory to having some teeth extracted. Her heart was weak, and she failed to revive.

Dental Examiner Named.—Governor Crawford, of South Dakota, has appointed Earnest H. Wilson, of Miller, a member of the State Board of Dental Examiners to fill the vacancy caused by the resignation of C. W. Stutenroth, of Watertown.

Woman Dies from Effects of Chloroform.—A lady of Chattanooga, Tenn., expired in a dentist's chair, Oct. 30, following a severe dental operation, in preparation for which chloroform was administered. Death was attributed to heart failure.

Pennsylvania State Examining Board.—At a meeting, October 11, of the Pennsylvania State Dental Examining Board, Dr. W. B. McFadden, of Philadelphia, was elected president and Dr. G. W. Klump, of Williamsport, secretary. Dr. H. A. Arthur, of Pittsburg, took the place of Dr. Young, of Wilkes-Barre.

A Physicians and Dentists' Building for Oakland, Cal.—The proposition to build a magnificent seven-story physicians and dentists' building, at a cost of $300,000, at the corner of Thirteenth and Jackson streets, is a splendid exhibition of enterprise of the right kind on the part of the men of these professions in Oakland, Cal.

Death from Infected Dental Instruments.—Dr. Charles Eugene Monks, 38 years old, a dentist of New Britain, Conn., died Oct. 28 from blood-poisoning contracted in relieving a patient's suffering. The man suffered from a badly diseased tooth, and before the dentist could sterilize his instruments he plunged the point of one into the palm of his hand. Blood-poisoning immediately developed and death followed after three days of intense suffering.

Robberies.—Dr. T. S. Smith, Berkley, Cal., lost $20 worth of rolled gold, Oct. 3; Dr. H. C. Reynolds, Berkley, $15 and stamps, and C. S. McCowen, $25 worth of gold and platinum; Dr. C. C. Sherwood, Ottawa, O., $100 worth of gold leaf, Oct. 8; Dr. C. M. Gearhart, Greenville, O., bridge-work and gold to the value of $125, Oct. 16; Dr. J. W. Goddard, Ardmore, Pa., $100 worth of gold and postage stamps, Oct. 22; Dr. Raymond Stevens, Plainfield, N. J., gold metal valued at $28, Nov. 2; Dr. J. A. Stuart, Plainfield, loss $14, Nov. 2.

Dental Surgeons for the Army.—While there are no vacancies in the number of dental surgeons required for the army, it has been decided to hold an examination before long to establish an eligible list from which appointments can be made as vacancies occur. Letters are being sent out to applicants in various parts of the country asking them if they still desire to stand examination. As many of the applications are over a year old, the applicants may have found other engagements. All who still wish to enter the service, on signifying their desire to do so, will be ordered before a board of surgeons at the army post nearest to them for physical examination. Those who pass this will be ordered to West Point or San Francisco for the mental examination sometime in December.

Modern Dentistry, 2,300 Years Old.—The Rivista Italiana Odontojatria of recent date contains an article by Professor Galli, in which he says that modern dentistry is simply a revival of an old science. "A skull which was found in the Necropolis of the Etruscan city of Falerii," he says, "shows that dentistry was practiced by the Etruscans." The skull shows on one of the jaws four gold pieces, two of which were used to cover natural teeth, and the other pieces served as false teeth, or, in other words, bridge-work. "This shows that the Etruscans, like Americans of today, did not object to show gold-covered teeth. That all this should have lasted 2,300 years shows conclusively that the work was good. Dentistry has certainly made great progress, but the foundation was laid long ago, and the modern American bridge-work is without doubt a novelty which was known to the Etruscans 400 or 600 years before.

Memorial to William Saunders.—Col. Charles W. Larned, professor, U. S. M. A., informs us that subscriptions to a memorial to William Saunders, late hospital steward and dental surgeon at West Point, have been received aggregating $222.20. The memorial will take the form of an upright slab of granite, having the general shape of an obelisk, standing upon a granite plinth. The aggregate height of shaft and plinth will be seven feet eight inches. The front face of the shaft is polished, and has in raised letters the name "William Saunders." Above this is an incised palm branch, and below, in incised leters, the following inscription: "William Saunders, born 1835—died 1906. For 49 years hospital steward, dental surgeon and undertaker at the Military Academy. Simple and genial of life; a generous, unswerving and discreet friend; he has served the living and the dead of generations of West Pointers. Erected by friends."

German School Dental Clinics.—A municipal schulzahnklinik, or dental school clinic, has been opened in the German city of Freiburg. The dentist at the head of the school examines the teeth of all the children in the city, both in their homes and in the public schools. A report on such examinations is then sent to the parents, who are asked to send their children to the school dental clinic for free treatment. Those children who have 10 or more poor teeth are first treated, an exception, however, being made in the higher classes of the schools, where children with only slight defects receive treatment, in order that they may leave the schools with sound teeth. After these more serious cases are attended to, all other children, with defective teeth are treated, the younger ones having the preference. The treatment of the teeth includes extraction, filling, crowning, etc. There is no actual instruction in dental hygiene, but at the opening of the dental clinic the teachers explain its objects and working to the children. The zahnkarte, or tooth report card, contains on its reverse side instructions as to the proper care of the teeth.

Banquet in Honor of Dr. George L. Field.—The dentists of Detroit and vicinity gave a testimonial banquet, Oct. 26th, the occasion being the retirement of Dr. George L. Field from his professional life. The career of George Lindsey Field, D. D. S., has been one long succession of professional honors since he graduated from the Ohio Dental College in 1874. He was three times president of the Michigan State Dental Society; the American Dental Association, of which he has been a member 40 years, elected him vice-president; in 1881 he was a delegate to the International Medical congress at London, and he also was a delegate to the annual meeting of the American Dental Society in Europe at Weisbaden, Germany. Twelve years ago he was elected professor of clinical operative dentistry in the dental department of the Detroit College of Medicine, a position which he still holds. He also is a member of the Delta Sigma Delta fraternity of the National Dental Association and of the Detroit Dental Society. Dr. N. S. Hoff acted as toastmaster and toasts were responded to by Dr. E. C. Moore, Mr. G. P. Goodale, Dr. W. H. Jackson, Dr. J. S. Hall, Dr. H. K. Lathrop, Dr. James Cleland. A loving cup was presented to Dr. Field, Dr. G. F. Burke making the presentation speech.

Imagination and Teeth.—Two remarkable incidents are reported from a London dental hospital. A young woman went there to have five teeth extracted. It was decided, in order to alleviate the pain, that ethyl chloride should be administered. An india-rubber cap was placed over her mouth and nostrils, and in the head of the cap a screw was turned, which was to break a capsule containing the anesthetic, which would thereby be liberated. The patient went off gradually into the usual condition of insensibility, five teeth were extracted, and she awakened without feeling any part of the operation. The whole case appeared perfectly normal. Only when the young woman had left the room and the apparatus was being made ready for another patient was it discovered that the capsule of ethylchloride had, by some mischance, not been broken at all. The whole condition of insensibility had been brought about by the self-hypnotism of the patient. The idea that the anesthetic was being administered was so strong in her mind that she had passed into insensibility entirely by hypnotic suggestion. In the second instance, ethylchloride was being sprayed on the gums in order to freeze them and produce local anesthesia. It was afterward found that the "gag" had been so placed in the mouth as to screen the gums from the anesthetic, but the mere suggestion that it had frozen them was sufficient to prevent the patient feeling the pain when the tooth was being extracted.

Deaths.—Dr. E. J. Goodman, Devine, Tex., formerly of El Paso, Oct. 4; Dr. M. E. Le Galley, Peru, Ind., at Bowling Green, O., Oct. 6, of Bright's disease; Dr. William Peeso, formerly of Grand Rapids, Wis., at Minneapolis, while being operated on for cancer; Dr. T. D. Sherwin, Lincoln, Neb., Oct. 18, aged 43 years; Dr. John H. Eldred, Norwich, Conn., formerly of Providence, R. I., Oct 20, aged 45 years; Dr. Wm. M. Hunt, Washington, D. C., Oct. 20, aged 43 years; Dr. Frederick Bradley, Newport, R. I., Oct. 23, aged 58 years; Dr. Thomas A. Goodwin, Warsaw, Ind., Oct. 26, aged 60 years; Dr. Frank C. Mendenhall, Everett, Washington, Oct. 29, of typhoid fever, aged 24 years; Dr. Wm. P. Welsh, Baltimore, Md., Nov. 3, aged 70 years; Dr. Hanford Thayer, St. Louis, Mo., Oct. 28, of pneumonia, aged 56 years; Alfonso Wheeler (colored) official dentist to the court of Don Pedro, of Brazil, died at the Worcester, Mass., City Hospital, Oct. 27, of pneumonia, aged 90 years. Mr. Wheeler was born in Canton, Vt., and studied dentistry in the United States, going early in life to South America. So marked was his success in his practice, which included nearly every large city in South America, that he was called to the court of Brazil. He came to Worcester some time ago and recently was operated on for cataract.

Free Dental Clinic Reports Good Progress.—The first report of the dental clinic of the Children's Aid Society of Manhattan, covering the first four months of the clinic's work at the West Fifty-third Street Industrial School, has just been made to the society. So far the work has been confined largely to the Fifty-third street school. Out of the 394 children examined, 100 per cent. required some form of dental treatment. In the teeth of these 394 children, 1,264 cavities were found. It was necessary to extract 214 teeth, and of the remainder those which required immediate treatment were given attention either by filling the cavities or otherwise caring for the teeth. At first only one chair, with the necessary equipment was installed, but the need for a second one became so urgent that it was supplied. So far, however, the accessories for the other chair have not been forthcoming and the two dentists have to make shift with one outfit of tools. Even so, about 14 cases are attended to each day. Neighborhood work along the lines followed out by the society's visiting physicians and nurses is now to be instituted. As rapidly as possible the work will be extended, so that the 15,000 pupils in the different schools will not only be entitled to free treatment, but will be watched over by the teachers and required to have dental defects immediately remedied. Tooth-brushes are sold to the pupils at three cents each, and lessons in the care of the teeth are given.

To Examine School Children's Teeth.—Health Commissioner Bading of Milwaukee, Wis., is preparing an ordinance under which the children of the public schools will be subjected to a regular physical inspection. This was planned by the board of education after the physicians made extended investigation of the general physical condition of the pupils. And now another investigation is to be made of the children's teeth as a preliminary step toward legislation which will provide for general inspection. The Milwaukee Odontological Society offers to make the inspection at any number of schools free of charge for the purpose of ascertaining whether or not a further step is necessary. The school board committee on course of instruction recommended that the Odontological Society be permitted to make the necessary examination, and there is little doubt that this action will be ratified by the school board. In its statement to the school department the association of dentists simply ask for permission to inspect the mouths of children with a view to ascertaining the conditions existing here, and the findings will be made the subject of a report back to the board. It will then be up to that body to use its judgment as to the necessity for a further step in the movement. The dentists of Oshkosh, Wis., have made a proposition to the school board of that city to examine the teeth of children in the schools. Appleton, Wis., dentists are also in favor of making the same proposition.

Recent Patents of Interest to Dentists.—

867017—Tooth-powder receptacle, Herman L. DeMond, Philadelphia, Pa.

867193—Dental soldering apparatus, Edward Flannigan, St. Louis, Mo.

867062—Tooth-brush, Orville C. Lillie, Conneaut, O.

867063—Rotary tooth-brush, Orville C. Lillie, Conneaut, O.

866962—Swage for dental crown plates and similar articles, Carl Rauhe, Dusseldorf, Germany.

866963—Dental bur, Carl Rauhe, Dusseldorf, Germany.

866753—Head-rest, Henry E. Weber, Canton, O.

867264—Dental implement, Charles S. Evans, Dayton, O.

868628—Dental regulator and spacer, Eben M. Flagg, New York, N. Y.

868109—Making artificial teeth, Joseph Morris, North Wales, Pa.

Copies of the above patents may be obtained for 15 cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

PUBLISHER'S DEPARTMENT

SPECIAL ANNOUNCEMENT.

A rare treat is in store for the readers of The Dental Summary, 1908.

Arrangements are about completed for a series of practical articles on various subjects, of special interest to dentists, by men prominent in the profession. Some of the good things are:

A series of articles on "Porcelain, Porcelain Inlays, Gold Inlays, and Cast Gold Inlays."

A series of articles on "The Artistic in Construction of Crown and Bridge-work."

A series of articles on "The Artistic in Prosthesis."

A series of articles on "The Business Side of Dentistry."

A series of articles on "Rigg's Disease and Its Rational Treatment."

A series of articles on "Oral Surgery for Dentists."

A series of articles on "Difficult Extractions and Their Management."

Aside from these there will be articles on Dental Prophylaxis, Orthodontia, Operative Dentistry, etc.

Among the original contributions now in the hands of the editor for publication are the following:

"Arrangement and Occlusion of Artificial Teeth," by J. H. Prothero.

"Cavity Preparation for Gold Filling," by C. E. Woodbury.

"How to Increase the Anchorage of Porcelain Inlays," by W. H. Upjohn.

"Successful Practice Building," by Otto U. King.

"The Gold Filling vs. The Porcelain Inlay," by W. H. Green.

"Treatment of the Deciduous Teeth and Their Possessors," by O. U. King.

"Prophylaxis," by Horace Warren.

"Types of Mouth-Breathers," by L. P. Bethel.

"A Few Thoughts that Concern the Temporary Teeth," by F. M. Casto.

"Thoughts that Concern the Importance of the Deciduous Teeth," by V. E. Barnes.

"Ethics, Professional and Business," by J. M. Prime.

"Cohesive Tin," by W. M. Randall.

"The Logan Crown," by D. J. McMillan.

"Fracture of the Superior and Inferior Maxillae " by A. L. Revell.

"Annealed Tin and Gold Filling," by W. M. Megginson.

"Better Society Organization," by G. W. Collins.

"The Nose and Throat Specialist and the Dentist," by J. G. Parsons.

"Hypersensitive Dentine," by H. B. Tileston.

"The Tongue," by J. S. Cassidy.

"A Simple and Easily-Made Button for Small Cleft in Hard Palate," by J. A. Stoeckley.

"Orthodontia," by E. G. Antrim.

"Practical Points in Dentistry," by S. D. Ruggles.

"Diagnosis and Treatment of Alveolar Abscess," by Arthur D. Black.

"Our Duty to the Public and Why We Fail," by A. P. Bell.

"The Contributions of Pioneer Dentists to Science, Art, Literature and Music," by Burton Lee Thorpe.

"Silk and Calico in Dental Practice," by C. M. Wright.

"Pyorrhea," by J. D. Patterson.

"Cast Inlay," by L. E. Custer.

"A Combination Filling," by R. L. Spencer.

"Method of Swaging Inlay Matrix," by N. W. Hiatt.

"A Suggestion Regarding Disks," by A. W. Jamison.

"A Method of Cleaning Carborundum Wheels," by R. S. Booth.

"How to Prepare Your Own Ligatures," by H. W. Reader.

"Non-cohesive Gold Filling," by C. E. Brown.

"A Case of Orthodontia," by H. A. Shannon.

"Treatment of Putrescent Root-Canals," by J. W. Puckett.

"Things Old and New in Dentistry," by J. W. White.

"The Treatment and Filling of Children's Teeth in Extreme Cases," by T. H. Terry.

"Root Treatment and Filling," by R. J. Winn.

"Anatomical Occlusion of Artificial Teeth," by W. D. James.

"Causes of Failure in Gold Fillings," by W. E. Kennedy.

"Dental Paradoxes," by C. M. Wright.

"The Rationale of Root-Canal Filling," M. C. Ramaley.

REGULAR CONTRIBUTIONS.

This department will have articles of value presented, as The Dental Summary is the official organ of the Ohio State Dental Society, Indiana State Dental Society, Kentucky State Dental Society, Nebraska State Dental Society, South Dakota State Dental Society, besides a number of prominent minor dental societies.

EXCHANGE OF PRACTICAL IDEAS.

This department will be continued. It is given over to our readers to keep supplied with practical methods they have found helpful.

PRACTICAL SUGGESTIONS.

In this department the best "Practical Suggestions" given in all other dental journals will be culled and presented in concise form.

CORRESPONDENCE.

Correspondence articles of interest will be given, and compiled articles of special importance reproduced in whole or abstract.

SOCIETY.

This department will keep you posted on society meetings throughout the United States.

AFTERMATH.

Our "Aftermath" will furnish a grist of dental news gathered from all sections of the country.

Due: JUL 10 1955